



PoleCam HD Cart System Instruction & Admin Manual



InterTest, Inc. • 303 Route 94 • Columbia, NJ 07832
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Intertest Inc.



Contact Information

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Introduction:

Congratulations on your investment in the PoleCam HD Cart System, InterTest's 1" diameter ultraviolet and white light visual inspection and bore examination system (VIBES). All PoleCam HD Cart systems combine a high-definition color camera with robust positioning hardware. An operator can conduct on-the-spot white light, magnetic particle and fluorescent penetrant inspections of intricate components with minimal fixturing.

Many features enhance VIBES system performance and versatility these include:

Generous Movement Envelope

Controlled by either hand or with optional motors, the camera boom travel is 51 inches* horizontally and 16 inches* vertically.

Illumination Control

VIBES systems have both white and UV light capability. Intensity is controlled independently and operation can be UV, white, or both simultaneous.

Video Camera

The SeeUV PoleCam Cart System has motor driven remote controlled focus to ensure crisp, high- definition video images. They capture color video at a resolution of 1920 x 1080 pixels with selectable output formats DVI 1080/30 fps, 720/60 fps or VGA/120 fps.

- *Alternate travel values available.



High Definition Color Images

Illumination, optics, and CMOS imager are optimized for life-like video reproduction of the target surfaces. Color rendition replicates direct viewing of surfaces.

Interchangeable Optics

Five optical adapters allow quick tool-less change of direction of view with corresponding options in field of view (magnification).

System Component selection:

1. EM15472 iShot PoleCam HD 1000 6' length, 1.00" diameter
2. EM17405 iShot PoleCam HD Cart Controller
3. EM15446 iShot PoleCam HD Camera Control unit
4. EM15455 iShot PoleCam HD Dual light sources (1 white & 1 UV LED)
5. EM15475 iShot PoleCam HD 45 degree DOV optical adapter
6. EM16313 iShot PoleCam HD 60 degree DOV optical adapter
7. EM15477 iShot PoleCam HD 90 degree wide DOV optical adapter
8. EM16312 iShot PoleCam HD 0 degree DOV optical adapter
9. EM15018 PoleCam Slide fixture 51" range
10. EM16937 DVI (M) to HDMI (F) Type A Adapter
11. EM17063 17" Monitor

To view item details, use links provided below to corresponding item numbers above. PoleCam general link is <https://intertest.com/ishotr-seeuvr-1-0-inch-uv-polecam-hd-1000-camera-system.html>

1. <https://intertest.com/ishotr-seeuvr-polecam-hd-1000-6-foot-pole-5-foot-cable.html>
2. <https://intertest.com/ishot-polecam-hd-camera-control-unit.html>
3. <https://intertest.com/ishot-see-uv-polecam-hd-1000-dual-ls.html>
4. <https://intertest.com/ishotr-seeuvr-polecam-hd-45-degree-dov-optical-adapter.html>
5. <https://intertest.com/ishotr-seeuvr-polecam-hd-60-degree-dov-optical-adapter.html>
6. <https://intertest.com/ishotr-seeuvr-polecam-hd-90-degree-dov-with-wide-fov-optical-adapter.html>
7. <https://intertest.com/ishotr-seeuvr-polecam-hd-90-degree-dov-with-narrow-fov-optical-adapter.html>
8. <https://intertest.com/ishotr-seeuvr-polecam-hd-0-degree-dov-optical-adapter.html>



- <https://intertest.com/polecam-slide-fixture-48-range.html>

Cautions and warnings.

Safety Precautions

This manual covers the PoleCam HD Cart System, its functions, and use. To ensure safe operation read this manual before operating the equipment. By doing so, you will become familiar with the equipment’s capabilities and better understand its functions. Save manual for future reference.

Follow all warnings and instructions in the manual and marked on the equipment.

Operational, General Safety Considerations and Precautions

Always observe the guidelines and precautions that follow.

There are no user-serviceable parts inside the controller. Refer all service to InterTest Customer Service and Support Group.



IMPORTANT: To ensure operator safety, read and understand this manual before using the system.

To avoid injury, read and understand the associated documentation of support components prior to operation. Direct any questions about equipment operation to InterTest Customer Service and Support Group at 908-496-8008 or via email to service@intertest.com.

Cautionary Symbols and Symbol Terminology

Table A describes the various symbols that are used in this manual and mounted on the equipment. The severity level of a potential hazard varies. Refer to for hazard level descriptions.

Table A — Manual and Equipment Safety Symbols

Symbols	Definitions
	WARNING/CAUTION: Risk of electric shock.
	WARNING/CAUTION: Refer to instruction manual.
	WARNING/CAUTION: Avoid exposure to water and liquids.
	WARNING/CAUTION: Avoid eye and skin exposure to UVA Light.



Warnings

Stop operation immediately when any abnormality or defect occurs. Use during an abnormal condition; such as emitting smoke, burning odors, after damage from dropping, invasion of foreign objects, etc. may cause fire and/or electrical shock. Disconnect the power plug from the electrical outlet at once and contact InterTest Inc for service.

Care & Maintenance

Boom Hazard

- Use care when moving the SeeUV PoleCam HD Cart System. The pole protrudes well past the end of the cart.
- Retract pole before moving unit. It is recommended that the pole be holstered for movement and long-term storage
- Do not subject to loads.
- Do not jar or impact with other items.

Light Sources, Light Guides & Cables

- Do not look directly at UV light; damage to your eyes may occur.
- Use care when removing light guides from light sources after use, they will be hot.
- Do not expose to moisture or direct sunlight.
- Do not expose positioning mechanism to abrasive particulate or environments with airborne debris.
- Always replace blown fuses with identically rated ones.
- Never bypass the grounding circuits of system components.
- Bundle all excess cordage to prevent snagging.
- Do not operate near intense electromagnetic fields.
- With the exception of lamp and fuse replacement, refer all service to InterTest technicians.

Cart

- Engage both wheel locks prior to system operation.

Light Guides

- Do not pull or otherwise exert tensional force
- Do not subject to tight bend radii.
- Do not use a fiber-based light guide with an ultraviolet light source
- Do not allow light guide jack to strike floor.

Monitor

- Clean as needed using a cloth dampened with glass-cleaning solution.
- Do not block ventilation ports



- Refer to owner's manual before adjusting monitor settings.

Lubricant

- Lubricate the taper roller bearing at the bottom of the elevation lead screws.
- Use NLGI #2 equivalent bearing grease. Use a small amount annually.
- Monthly wipe down vertical support rods with light oil such as 3-in-1.

Control Units

- Clean intake and exhaust ports on a regular basis. Keep clear and free from dust

Only use the specified power supply.



Do not use in proximity to energized electrical equipment

Do not connect or disconnect any cable while the unit is energized.

Some surfaces may be warm to the touch. Use caution when handling.

Disclaimers

InterTest Inc. disclaims any responsibility and shall be held harmless for any damages or losses uncured by the user with the use of this product. Including the following:

1. Fire, earthquake or any other Act of God. Acts by third parties; misuse by the user, whether intentional or accidental; use under conditions outside of noted operating range.
2. Malfunction or non-function resulting in indirect, additional or consequential damage including but not limited to loss of expected income and suspension of business activities.
3. Use not in compliance with this manual's instructions.
4. Malfunctions resulting from misconnection.
5. Unauthorized repairs or modifications.
6. Notwithstanding the foregoing, InterTest's liabilities shall not exceed the purchase price of the product.

Warranty

InterTest, Inc. guarantees products manufactured by InterTest, Inc. to be free from defects in materials and workmanship for a period of one (1) year, from the date of original purchase. All other products not manufactured by InterTest, Inc. will carry the OEM's limited warranty, which will be passed to the purchaser through and supported by InterTest, Inc. InterTest, Inc.'s obligation under this limited warranty shall be confined to the repair or exchange of any part, or parts thereof, that prove defective under normal use and service for which the product was intended or designed.



This limited warranty covers products that upon our examination are deemed to be defective.

This limited warranty is in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness for use. We neither assume, nor authorize any other person to assume for us, any other liabilities in connection with the sale of InterTest, Inc. equipment. This warranty does not apply to any equipment that has been subject to accident, negligence, alteration, abuse, unauthorized repair, improper storage, or other misuse.

This limited warranty applies only to the original purchaser and cannot be assigned or transferred to any third party without express written consent from InterTest, Inc.

This limited warranty does not apply to consumable items, expendable items or normal wear and tear, nor does it apply to failure due to radiation, overheating and / or below freezing temperatures. .

InterTest, Inc. assumes no responsibility, either expressed or implied, regarding the improper usage of this equipment or interpretation of test data derived from the use of this equipment. InterTest, Inc.'s responsibility and obligations, in all cases, are limited strictly to the repair and/or replacement costs outlined above.

The laws of the State of New Jersey shall govern this warranty.

Note: In the event the equipment cannot be returned to InterTest, Inc. The customer agrees to pay all travel and living expenses incurred to have an InterTest, Inc. representative evaluate, assess or affect a warranty repair in the field.

Copyrights and Rights of Portrait

There may be a conflict with the Copyright Law and other laws when a customer uses, displays, distributes or exhibits an image picked up by a television camera without permission from the copyright holder. Please also note that transfer of an image or file covered by copyright is restricted to use with the scope permitted by the Copyright Law.

Registered Trademark Information

InterTest® is a registered trademark of InterTest, Inc.
iShot® is a registered trademark of InterTest, Inc.
iShot® Imaging™ is a trademark of InterTest, Inc.



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System Components

Camera Control Unit, Light Sources, Monitor, On-Screen Display Unit & Cart

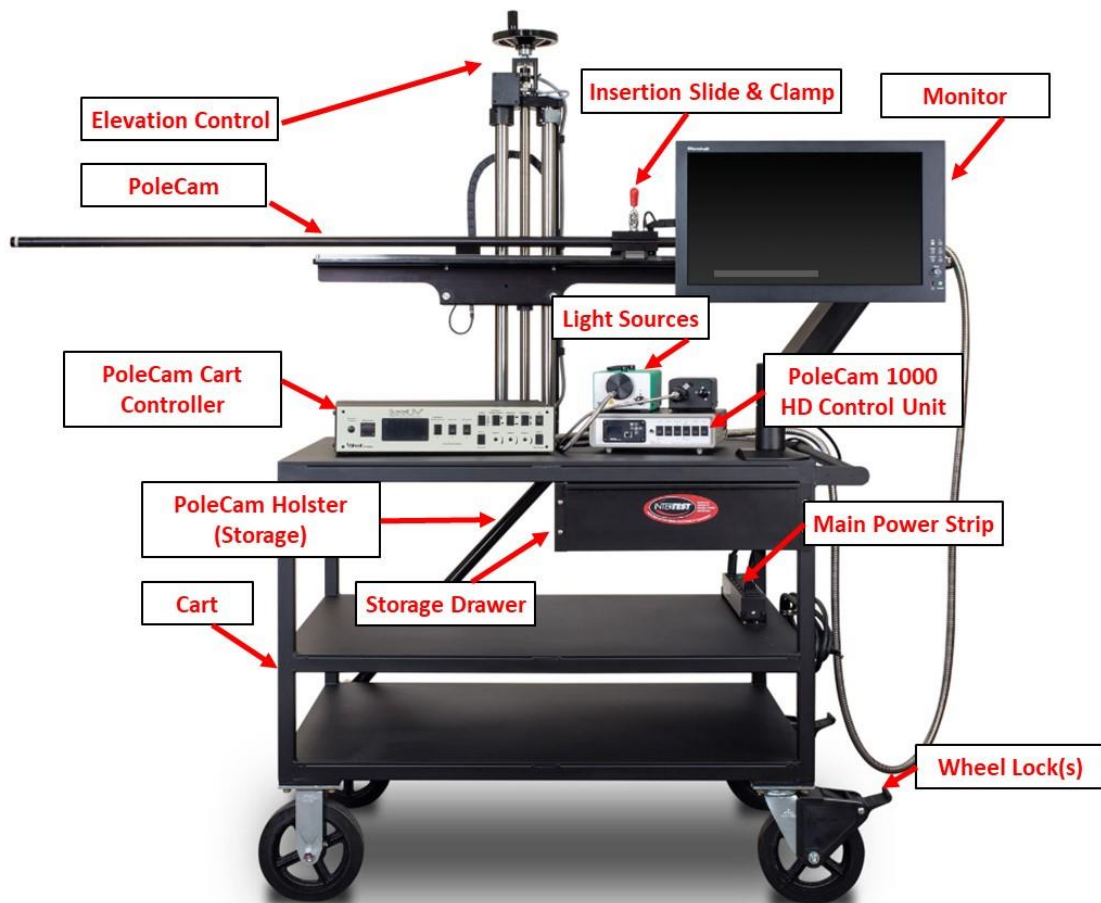


Figure 1 PoleCam HD Cart System

Standard

- | | |
|------------------------|---|
| 1. Cart | Wheeled cart with storage drawer |
| 2. Elevation/Insertion | Elevation/Insertion Assembly with PoleCam Clamp |
| 3. CCU | Camera Control Unit |
| 4. PoleCam | Pole system with imbedded CMOS video sensor and flexible umbilical |
| 5. Light Sources | UV & White Light Sources |
| 6. On-Screen Display | On-Screen Control/Display Unit (OSD) |
| 7. Monitor/Swing Arm | Monitor mounted on a swing arm |
| 8. Optical Adapters | PoleCam attachments that provides different Directions and Fields of View (FOV) |
| 9. Power Supplies | AC for CCU & AC to DC Adapters for light sources |
| 10. DVI Cable | Cable that carries images to OSD unit to be displayed |

Available Optical Adapters / Tips

1. 0 Degree
2. 45 Degree
3. 60 Degree
4. 90 Degree Narrow Field of View
5. 90 Degree Wide Field of View
6. PoleCam Protective End Cap



PoleCam Optical Adapters

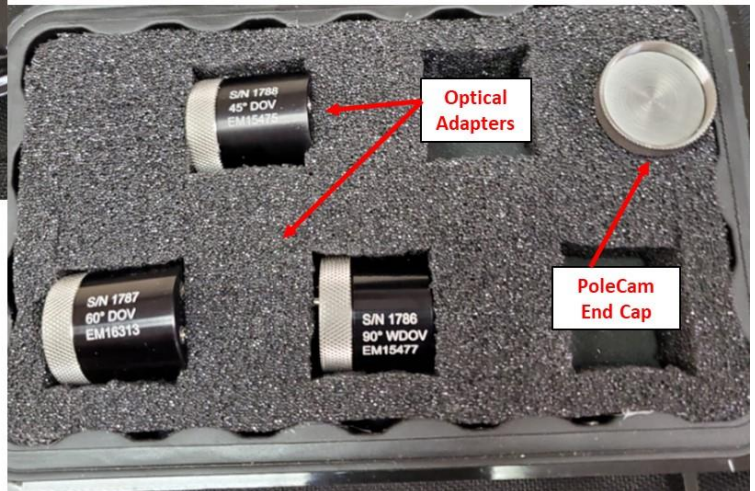


Figure 2 PoleCam Optical Adapters

Inter



PoleCam Protective Cap

Figure 3 PoleCam Protective Cap

Note: It is recommended to Store the PoleCam 1000HD using the protective cap

Controls and connections for PoleCam

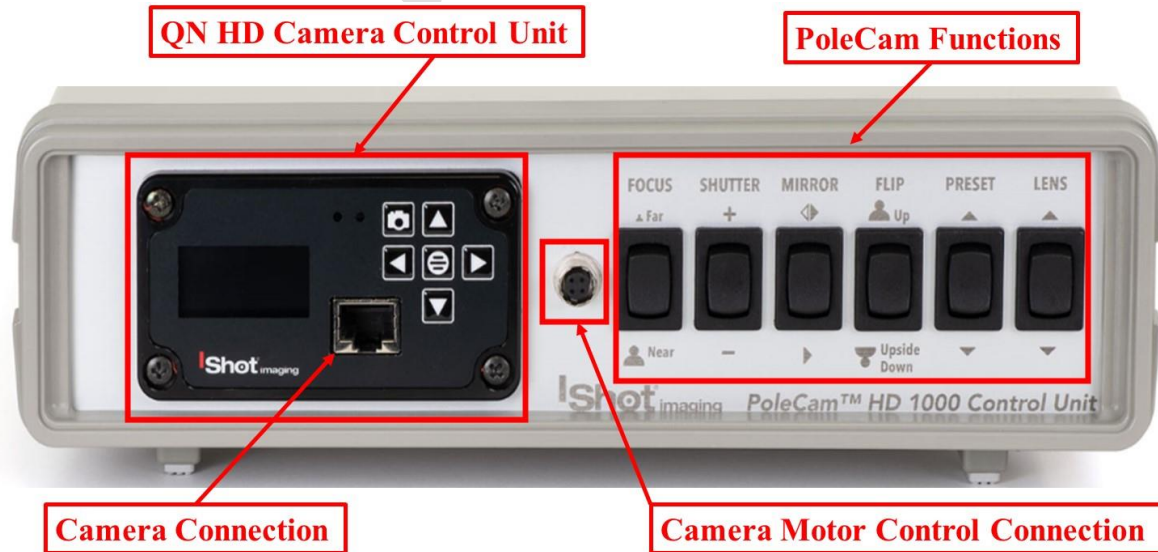


Figure 4 Control Unit Connections & Controls Front



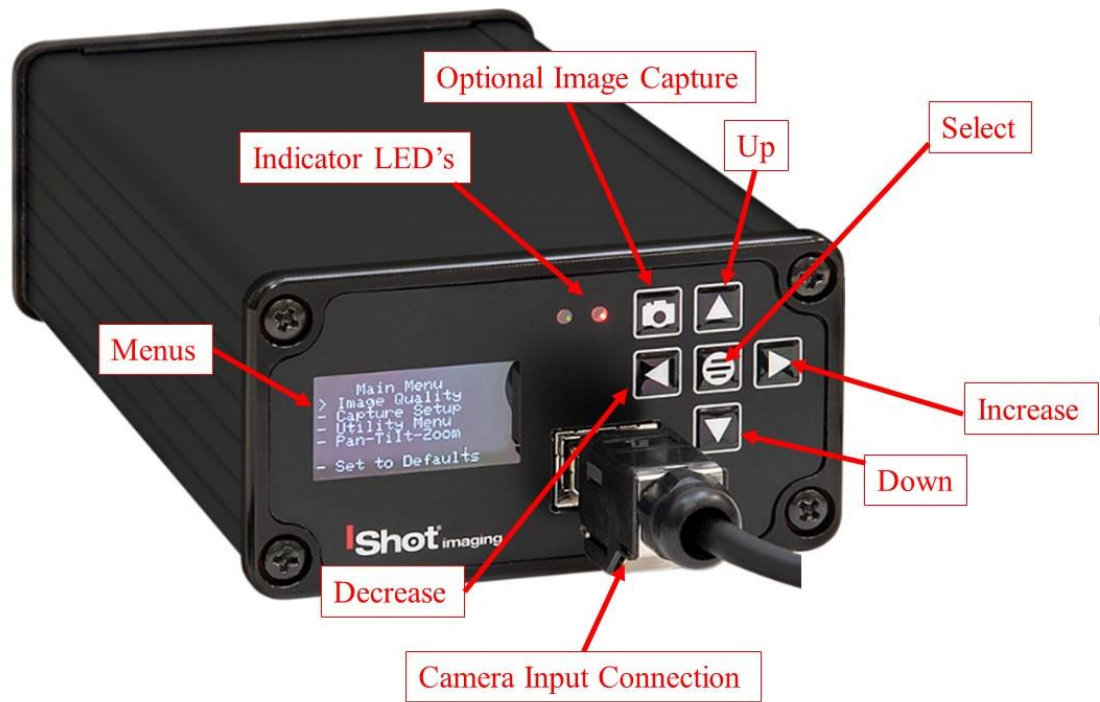
Figure 5 Power Connections Rear & CCU ON/OFF

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Figure 6 ON/OFF Controls Light Sources

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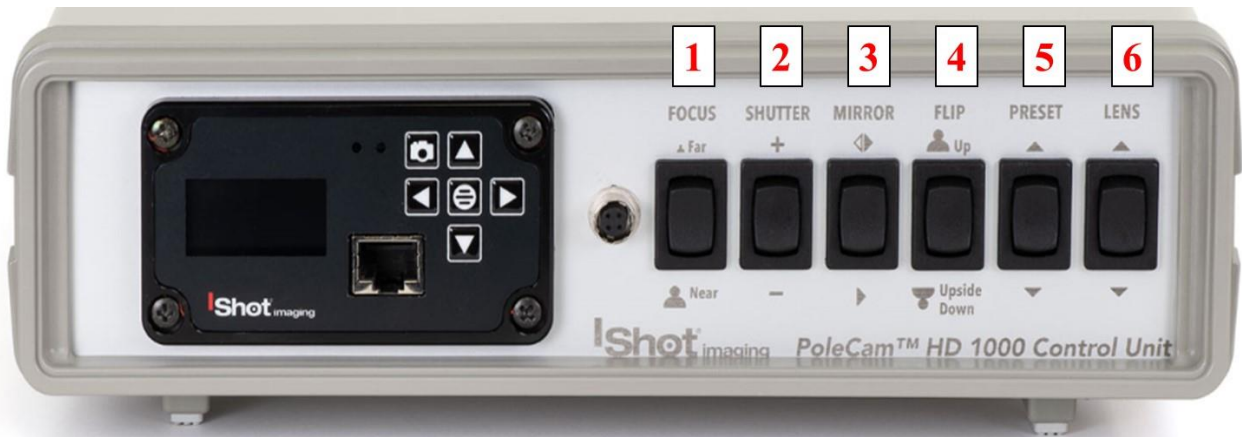


LED 1	Green if camera head is connected and comm channel is locked, Yellow if not
LED 2	Power

Figure 7 Labeled Front of Camera CCU

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Camera Controls



Button Number	Function	Options	Notes
1	Focus	Near / Far	
2	Shutter	+/-	
3	Mirror	Left / Right	
4	Flip	Up / Upside Down	
5	Preset	2 Available	Toggles between the 1st two presets in the camera control unit
6	Lens	Lens Color Correction	cycles thru the lens corrections stored in the control unit.

Figure 8 Labeled Front of Control Unit



Figure 9 Light Source Controls / Slider for Fine Light Control

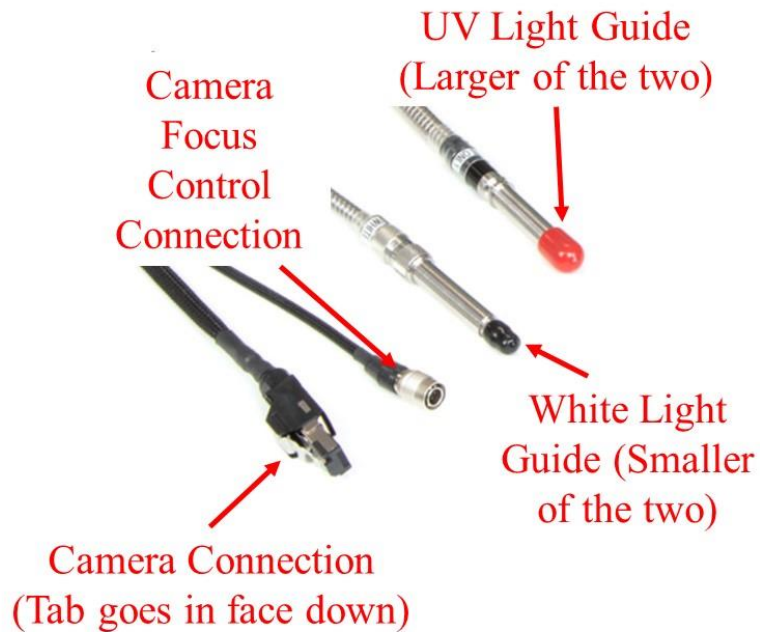


Figure 10 PoleCam Connections



Figure 11 Connected PoleCam Control System & Lightsources

General Operation

- Remove PoleCam from Storage Holster
- Make sure Main Power is turned OFF See Figure 12
- Install PoleCam on Elevation / Insertion Slide See Figure 13
 - 1) Place Insertion Slide/ Clamp all the way to the right
 - 2) Line Up PoleCam with end of Slide Assembly line Black Line/Label Face Up
 - 3) Clamp Pole. Make sure it is centered in the groove
- Connect PoleCam to the Cart Control Unit per Figures 11 & 14
- Install PoleCam Tip/Lens needed See Figure 16
- Connect external recording device (Optional) as shown in Figure 15
- Turn on Power on each Unit then Turn On Main Power Strip Per Figure 12
- Adjust settings with front panel toggles to optimize performance for intended use per Figure 7 & 8



After power is applied to the control units & turned ON, Right indicator LED will light up on the front of the Camera CCU See Figure 7, wait 5-10 seconds, until the Main Menu appears in the CCU Screen. OSD will appear in 20-30 Seconds provided it has been activated. See Figure 16 & 18. Turn on the light source(s), White/UV as needed See Figures 6, 9 & 12.

NOTE: On-Screen Display is configured for 1080P.

Settings changes will be saved automatically on power down. If any parameter is changed a back step in menu is required for it to be saved on power down.

Change of settings is performed by moving through menu to desired function then pressing the appropriate button for one step increments of value change or if the button is held down rapid steps through multiple values will occur.

Unit is shipped with default settings as noted on pages 30-31. Typical common use settings are accessed by front panel toggles.

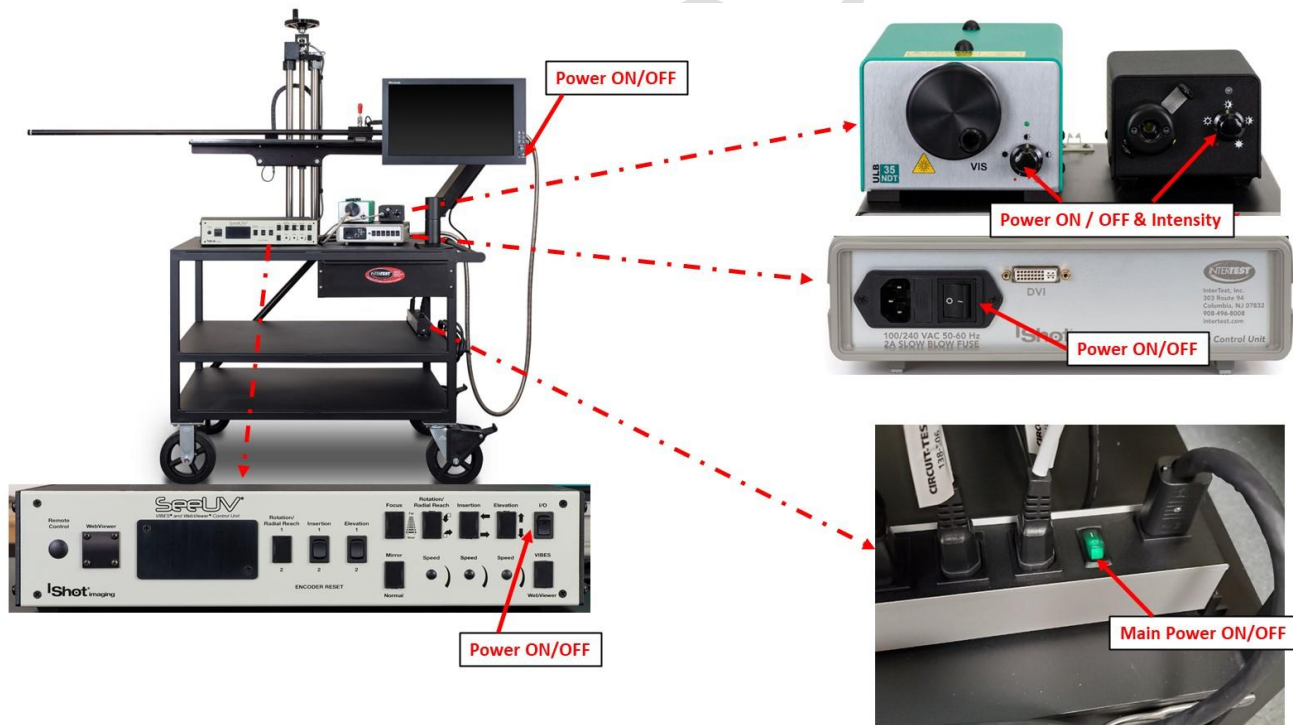


Figure 12 Power ON/OFF

Pole Mounting & System Connections

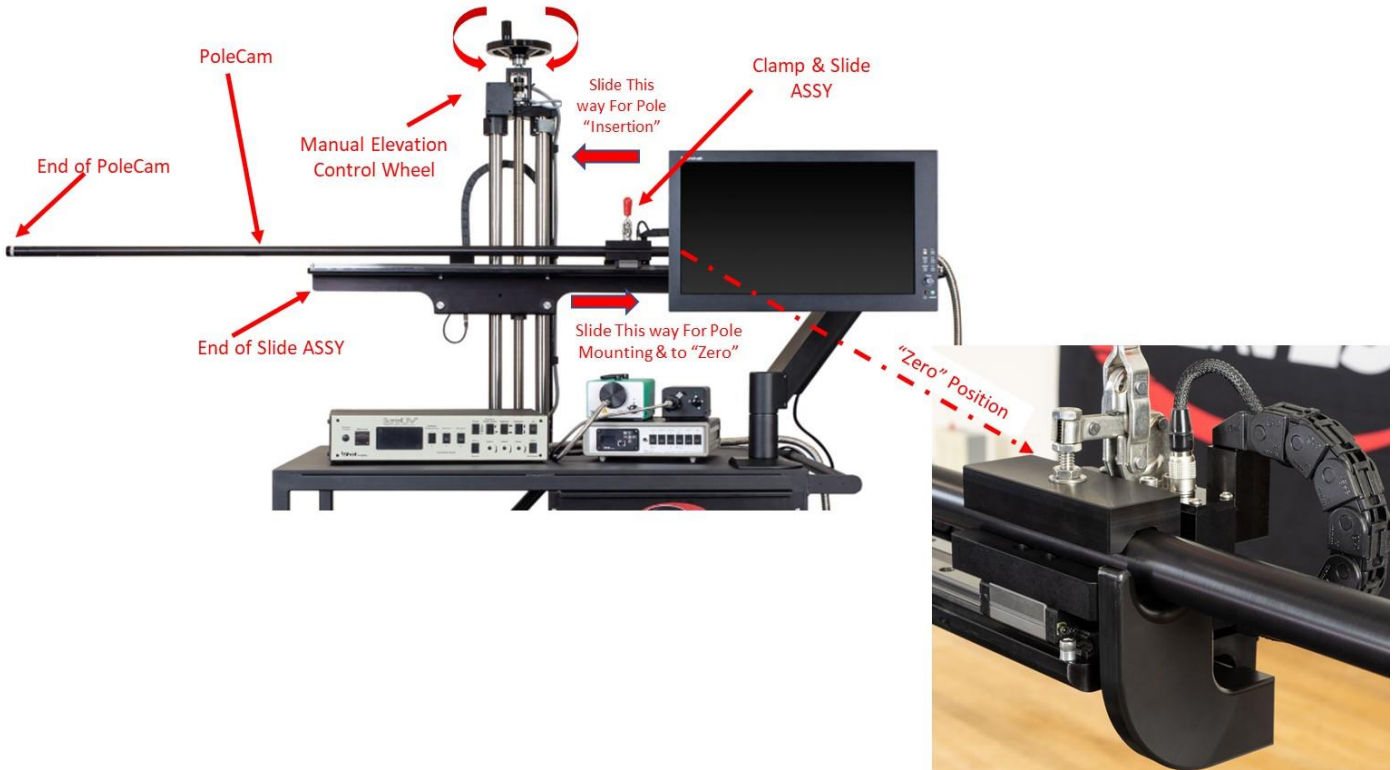


Figure 13 PoleCam Installation

InterTest

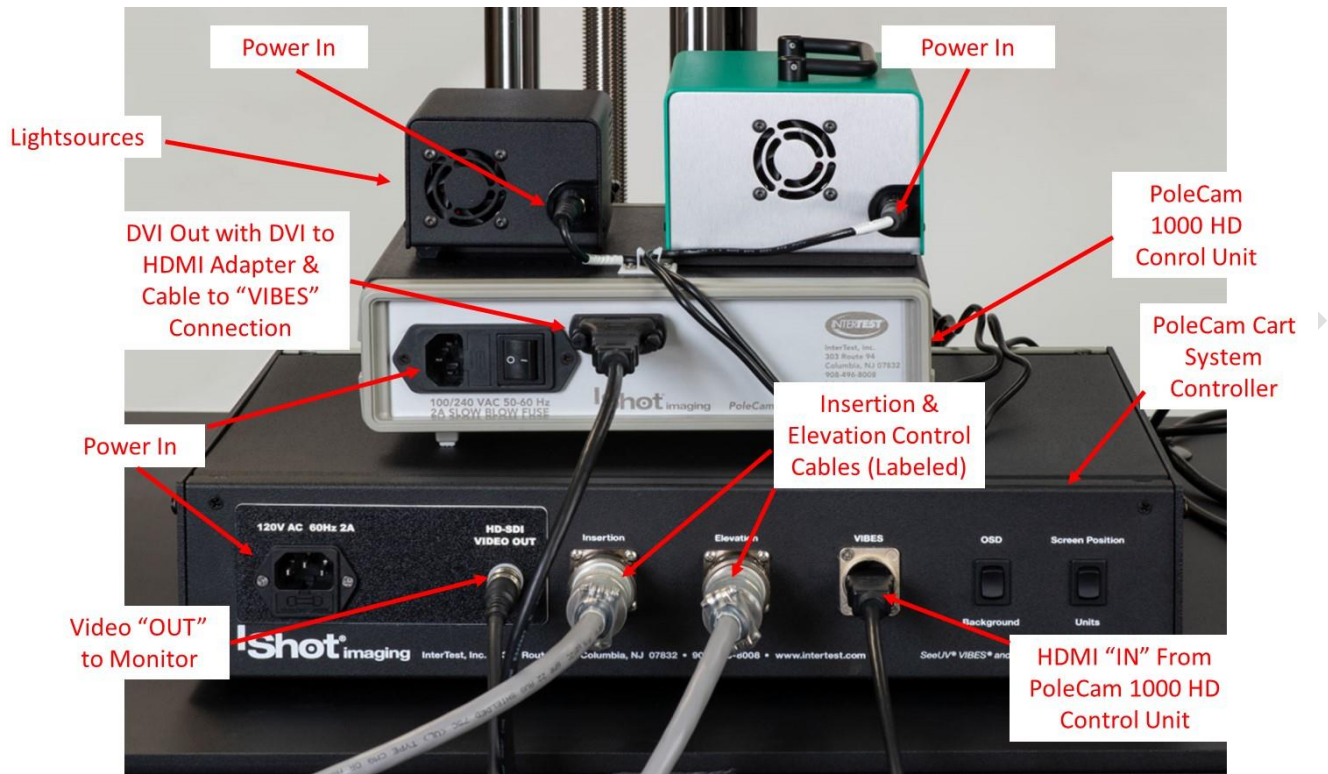


Figure 14 System Connections

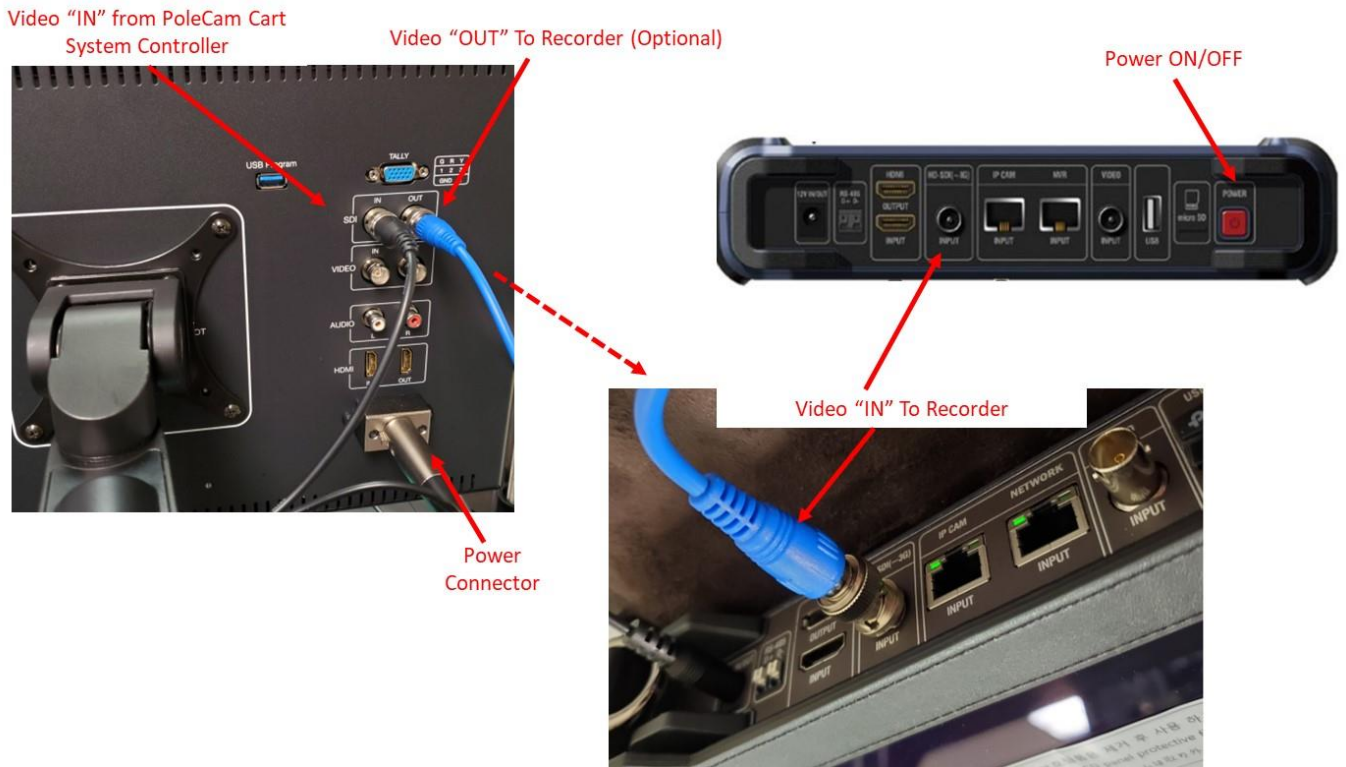


Figure 15 External Recording Connection (Optional)

**Line Up Pins & White Dot on
Optical Adapter to Holes & White
Dot on PoleCam HD**



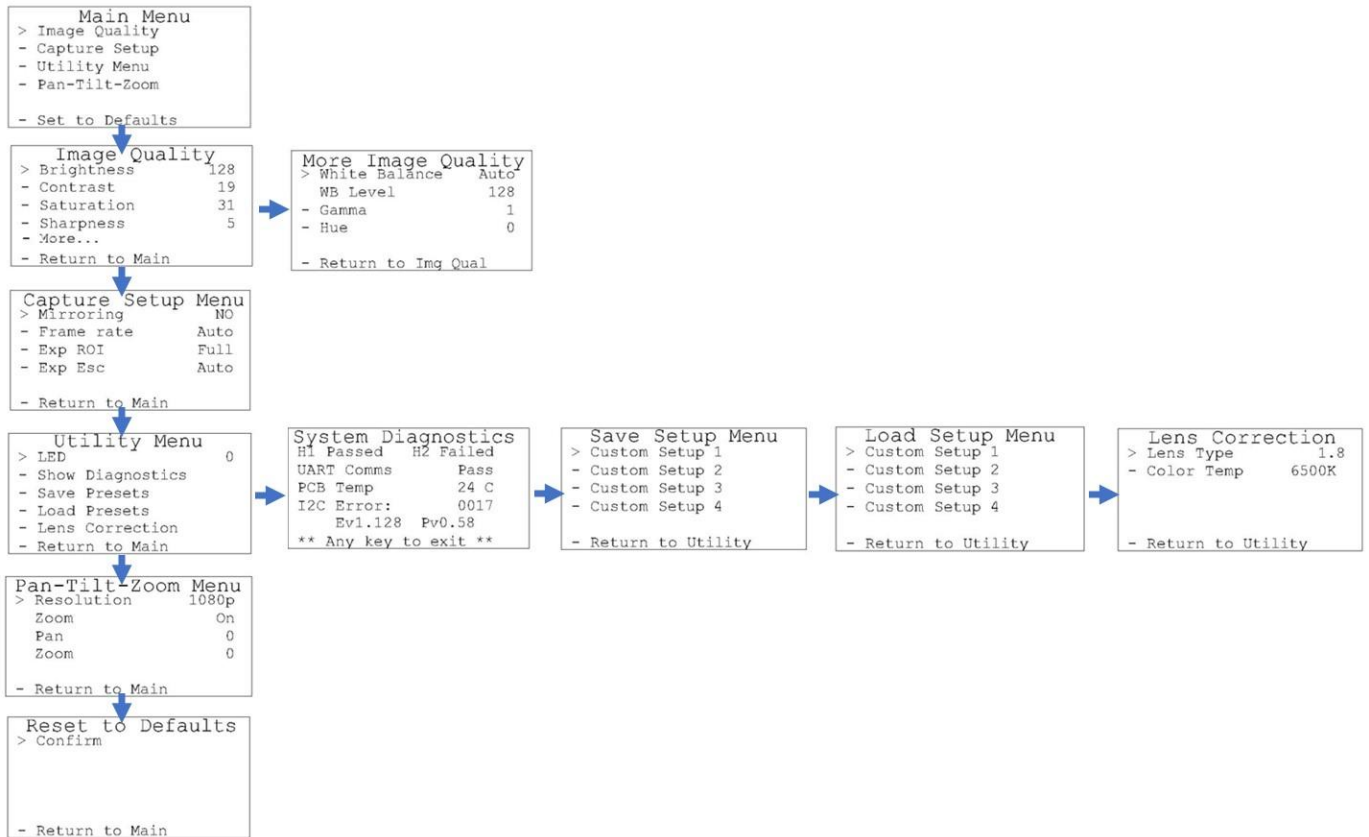
**Push Optical Adapter On & Then
Tighten by Hand as Shown**

Figure 16 Tip Installation

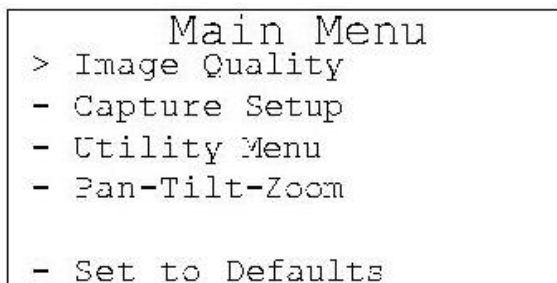
Inter



Operation & Menu Top Level Camera/PoleCam Control Unit



Menu Tree



Menu tree home.



Image Quality

```
Image Quality
> Brightness      128
- Contrast        19
- Saturation      31
- Sharpness       5
- More...
- Return to Main
```

Brightness: 0 to 255, Default: 128

Contrast: 0 to 63, Default: 16

Saturation: 0 to 63, Default: 31

Sharpness: 0 to 31, Default: 5

More continues to options on More Image Quality page.

Return to Main: returns to top of menu tree and saves settings.

```
More Image Quality
> White Balance  Auto
  WB Level      128
- Gamma         1
- Hue           0
- Return to Img Qual
```

White Balance: Auto or Set Set mode allows user to select fixed value.

WB Level: 0 to 255 Default: Auto
50 appears to be about neutral in fluorescent lighting.

Gamma: 0, 1, or 2 Default: 1

Hue: -180 to 180 Default: 0

Return to Img Qual: returns to previous page, Image Quality.



Capture Setup

```

Capture Setup Menu
> Mirroring          NO
- Frame rate        Auto
- Exp ROI           Full
- Exp Esc           Auto
- Return to Main

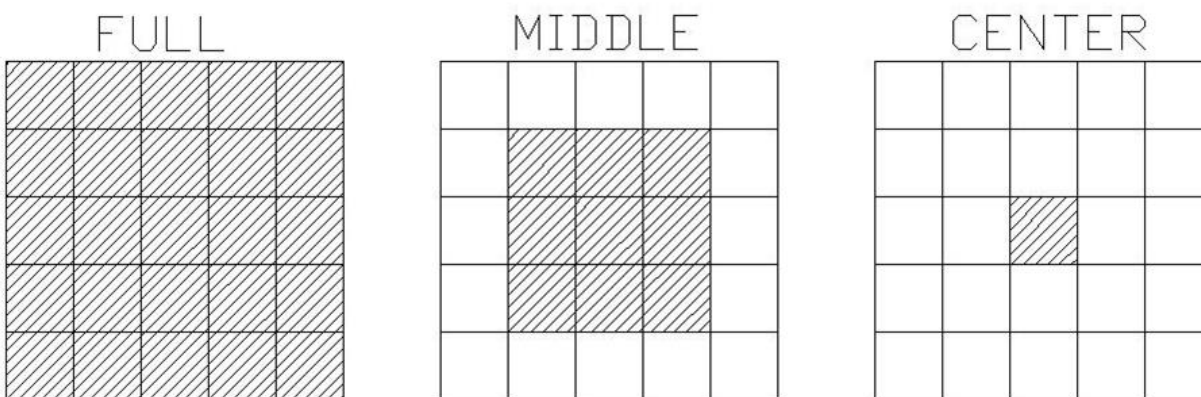
```

Mirror: No, H, V, HV. Default: No

Frame Rate: Auto, 1 to 30 Hz in 1080 Default: Auto
 1 to 60 Hz in 720
 1 to 120 Hz in VGA

Exp ROI: Full, Middle, Center Exposure Region Of Interest. Area analyzed to adjust Image

Exp ROI: Full, Middle, Center Exposure Region Of Interest. Area analyzed to adjust Image



EXP Sec: Auto, 1, 1/2, 1/3, 1/4, 1/5, 1/6, Default: Auto

Length of time image is exposed in seconds

1/7, 1/8, 1/9, 1/10, 1/15

1/20, 1/25, 1/30, 1/50,

1/60, 1/100, 1/120, 1/250

1/500, 1/1000, 1/5000,



1/10000, 1/20000, 1/30000

Utility Menu

```

Utility Menu
> LED 0
- Show Diagnostics
- Save Presets
- Load Presets
- Lens Correction
- Return to Main

```

- LED: 0 to 10 Light intensity level (not used in PoleCam)
- Show Diagnostics Displays system diagnostics status
- Save Presets Allows current settings to be stored for later recall
- Load presets Allows previously stored settings to be restored
- Lens Correction For setting color correction of the lens installed

System Diagnostic

```

System Diagnostics
H1 Passed H2 Failed
UART Comms Pass
PCB Temp 24 C
I2C Error: 0017
Ev1.128 Pv0.58
** Any key to exit **

```

- 1080/30 (H1): Locked/Failed Camera type attached
- 1080/60 (H2): Locked/Failed Camera type attached (not used in PoleCam)
- Note: Only one camera type will read as “Locked. The other will indicate fail

- UART Comms: Pass/Fail USB communication functioning
- PCB Temp: xx-xx C typ Temp on PCB
- I2C Error: 00xx
- Ev#.### Pv#.## firmware revision loaded in CCU.



```
Save Setup Menu
> Custom Setup 1
- Custom Setup 2
- Custom Setup 3
- Custom Setup 4

- Return to Utility
```

Allows up to 4 sets of camera settings to be stored for later recall and use.

Load Presets

```
Load Setup Menu
> Custom Setup 1
- Custom Setup 2
- Custom Setup 3
- Custom Setup 4

- Return to Utility
```

Allows recall and use of any of 4 previously store sets of camera settings.

Lens Correction

```
Lens Correction
> Lens Type      A-E
- Color Temp    6500K

- Return to Utility
```

Allows setting lens installed and color temp for image correction.

LENS TYPE: A, B, C, D, E

Color Temp: 2800K, 4500K or 6500K



Pan Tilt Zoom Menu

```
Pan-Tilt-Zoom Menu
> Resolution      1080p
  Zoom            On
  Pan              0
  Tilt             0
- Return to Main
```

Resolution:

DVI output 1080p, 720p
In 1080p Pan, Tilt & Zoom Disabled

Zoom: On/Off Default: Disabled

Pan: +/- 320 in 720p Default: Disabled

+/- 640 in 480

Tilt: +/-180 in 720p Default: Disabled

+/- 300 in 480

Set to defaults

```
Reset to Defaults
> Confirm
- Return to Main
```

Confirm: changes settings to the factory default settings and returns to Main Menu.

Return to Main: Returns to top of Menu Tree (Main Menu), without changing settings.



Shutter Table:

The shutter increment and decrement functions have 18 total steps as seen in the following table. The shutter value can be set to any value between 1/1 to 1/20000 using the direct command. If the shutter value is set to a different value than one in the table, the increment and decrement commands will set the shutter value to the next highest or next lowest shutter step respectively. If the shutter is given a decrement command while at shutter value 1/1 the shutter value will go into auto mode.

Step #	Shutter Speed	qr st value
0	Auto	00 00
1	1	00 01
2	1/2	00 02
3	1/3	00 03
4	1/4	00 04
5	1/8	00 08
6	1/15	00 0F
7	1/25	00 19
8	1/30	00 1E
9	1/50	00 32
10	1/60	00 3C
11	1/100	00 64
12	1/250	00 FA
13	1/500	01 F4
14	1/1000	03 E8
15	1/5000	13 88
16	1/10000	27 10
17	1/20000	4E 20

Tip Installation

See figure 16 Insertion & Elevation Controls

Manual rotation of control wheel for elevation adjustment

Manual horizontal movement by hand on the Polecam

See figure 13



Polecam Cart System Controller

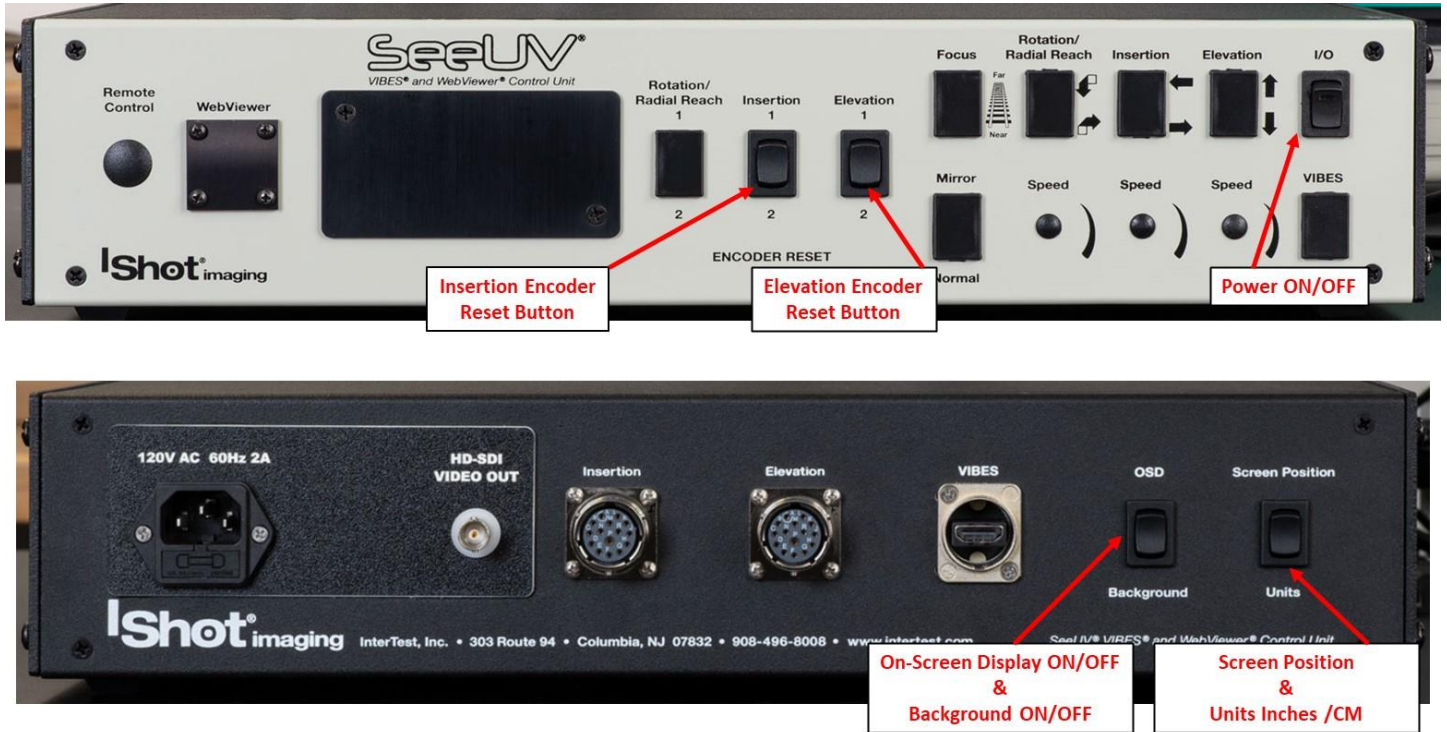


Figure 17 On-Screen Display, OSD, Controls

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Button Function	Function	Notes
Power On/Off	Turn On Manin System Power to OSD Unit	Switch Will Illuminate
Insertion Encoder Rest Button	Zeros Insertion Encoder	Pressing Up will reset insertion depth Down will rest Reference Value See Figure 12
Elevation Encoder Rest Button	Zeros Elevation Encoder	Pressing Up will reset Elevation Height Down will rest Reference Value See Figure 12
On-Screen Display ON/OFF & Background ON/OFF	Press UP to Turn ON OSD	
On-Screen Display ON/OFF & Background ON/OFF	Press Down to Turn ON Background for Encoder Values	
Screen Position & Units Inches /CM	Press UP to Cycle OSD in each corner of the Screen	Each Button Press Moves OSD to One of the Four Corners
Screen Position & Units Inches /CM	Press Down to Cycle Units Between Inches & CM's	

Figure 18 OSD Button Functions

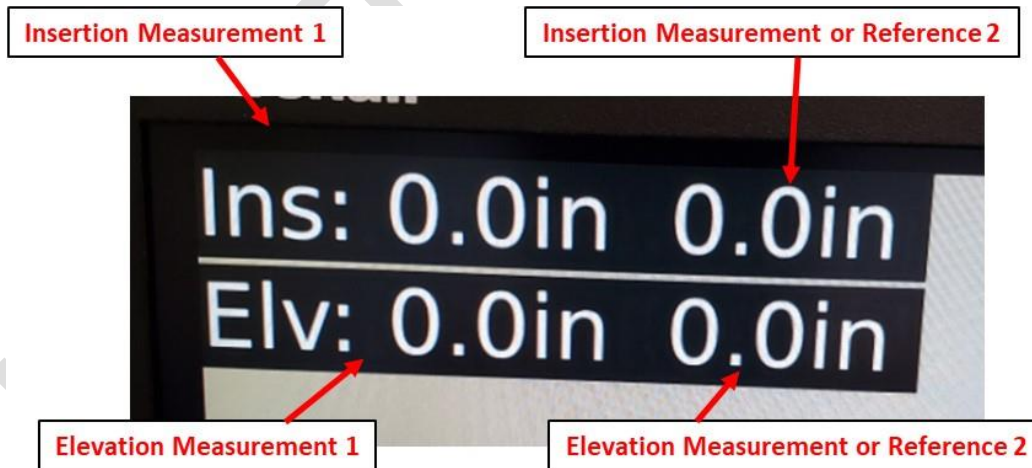


Figure 19 Insertion & Elevation Values



Specifications

Camera Head

Image Sensor	1/6 CMOS 2MP		
Active Array (H x V)	1920 x 1080		
Image Area (mm)	2.73 x 1.55		
Output Format	1080/30P	720/60P	VGA/120
Output Type	DVI & USB	DVI & USB	USB
Minum illumination			
S/N ratio			
Environmental	Temperature	RH	
Operational	0 to 60 C	90% non condensing	
Storage	neg 20 to 85 C	non condensing	
Weight	3 g	without cable	

Camera Cable

	PVC	PFA
Temperture	neg 55 to 105 C	neg 65 to 210 C
Length	15 m max	15 m max
Weight	31 g/m	24g/m
Diameter	4.1 mm	3.7 mm

Camera Control Unit (CCU)

Power Supply (USB 3 C)	5V 1A	with LED driver active
Environmental	Temperature	RH
Operational	0 to 60 C	90% non condensing
Storage	negative 20 to 85 C	non condensing
Size	87 x 47 x 170	W x H x L
Weight	370 g	
Remote communications	RS232	
	Still Photo Capture	
Output 1	DVI	1080/30p & 720/60p
Output 2	USB 2	1080/30p, 720/60p, 640x480/120p
LED driver output		
constant current P/S	Up to 1A	10 step control



Cart System

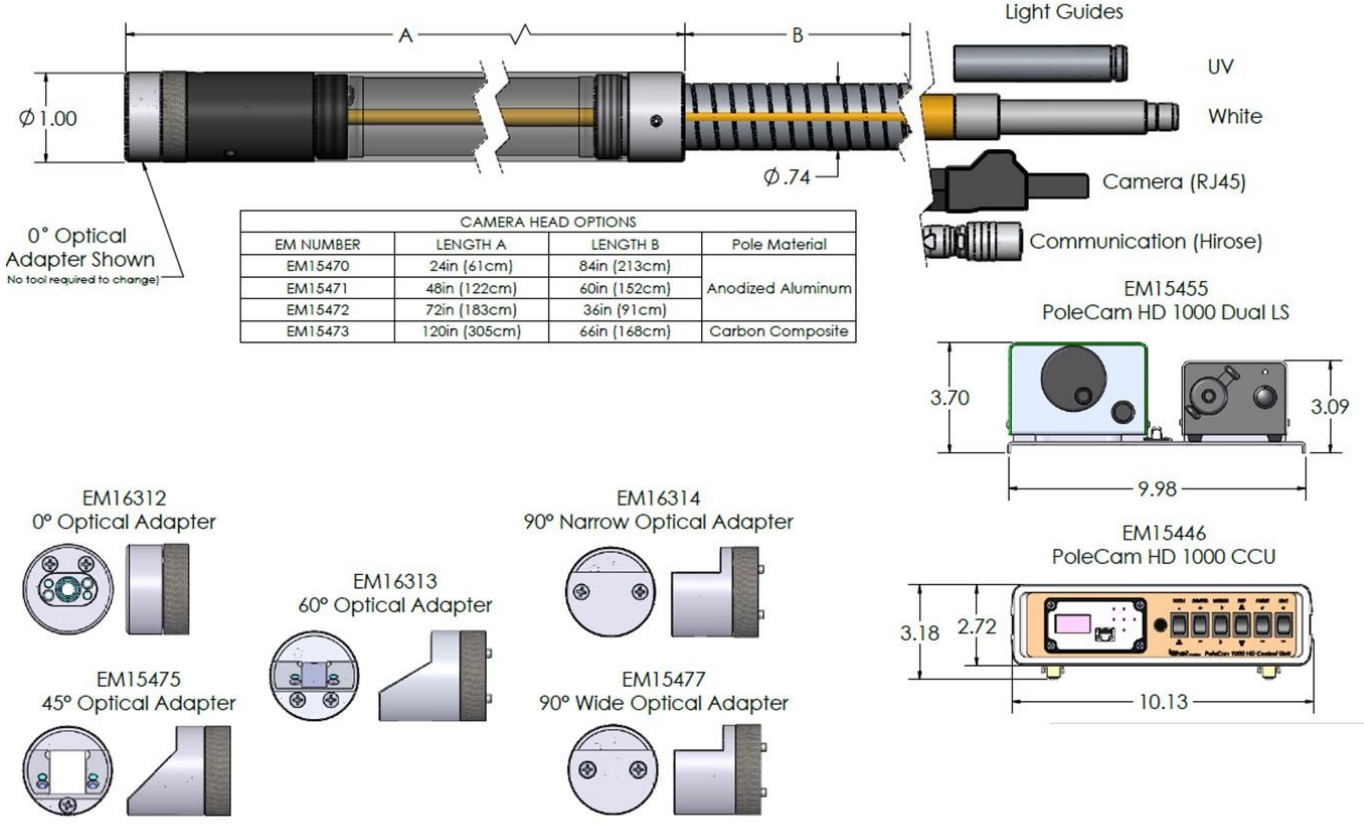
SeeUV PoleCam HD Cart System	
Boom Diameter	Pole Cam HD 1.0" (2.54cm)
Boom Length	72" (182.8 cm)
Insertion Length	52" (132.1 cm)
Elevation Range	36-52" (91 cm to 132 cm)
Elevation Control	Manual
Rotation Range	Fix
Rotation Control	N/A

Optical Adapters (Tips)

Direction of View (Degrees)	Lens (mm)	Field of View at Distance	Line Pairs at Distance	Indication Capability at Distance
0	2.5	65 x 37mm at 25mm	•11 line pairs/mm at 25mm	0.068mm Indication at 25mm
45	7.1	36 x 20mm at 50mm	•11 line pairs/mm at 50mm	0.038mm Indication at 50mm
60	7.1	36 x 20mm at 50mm	•11 line pairs/mm at 50mm	0.040mm Indication at 50mm
90 Wide	2.5	80 x 41mm at 25mm	•8 line pairs/mm at 25mm	0.068mm Indication at 25mm
90 Narrow	7.1	36 x 20mm at 50mm	•11 line pairs/mm at 50mm	0.040mm Indication at 50mm



Controller & Camera Mechanical Specifications





PoleCam HD Cart System Instruction & Admin Manual

Imager Control Menu Values & Defaults

Menu Tier	Item	Sub Item	Sub sub item	Values	Default	
1	Image Quality					
		Brightness		0 to 255	128	
		Contrast		0 to 63	19	
		Saturation		0 to 63	31	
		Sharpness		0 to 31	5	
		Return to Main				
		White Balance	auto		x	
				set	0 to 255	
		Gamma		0, 1, 2	1	
		Hue		-180 to 180	0	

Menu Tier	Item	Sub Item	Sub sub item	Values	Default	
2	Capture setup	Mirror		No, H, V, HV	No	
			Frame rate (fps)	auto	x	
				set	1 to 30 Hz in 1080	
					1 to 60 Hz in 720	
			(USB 2 only)		1 to 120 Hz in VGA	
			Exp ROI		full, middle, center	
			Exp Sec	auto		x
				set	auto, 1, 1/2, 1/3, 1/4,	
					1/5, 1/6, 1/7, 1/8, 1/9,	
					1/10, 1/15, 1/20, 1/25,	
					1/30, 1/50, 1/60, 1/100,	
					1/120, 1/250, 1/500,	
					1/1000, 1/5000,	
					1/10000, 1/20000,	
					1/30000	
				Return to Main		

Int



PoleCam HD Cart System Instruction & Admin Manual

Menu Tier	Item	Sub Item	Sub sub item	Values	Default
3	Utility menu				
		LED level	0 to 10		
		Show Diagnostics	H1	pass, fail	
			H2	pass, fail	
			UART com	pass, fail	
			PCB Temp	°C	
			I2C error	pass, fail	
			Ev	1.112	
			Pv	0.58	
		Save Presets			
			Save Setup 1		
			Save Setup 2		
			Save Setup 3		
			Save Setup 4		
			Return to utility menu		
		Load Presets			
			Custom setup 1		
			Custom setup 2		
			Custom setup 3		
			Custom setup 4		
			Return to utility menu		
		Lens correction			
			lens type	1.8, 2.5, 4, 8, 15	
			Color temp	2000, 4500, 6500K	

Menu Tier	Item	Sub Item	Sub sub item	Values	Default
4	Pan Tilt Zoom Menu				
		Resolution		1080p/30	x
				720p/30	
				480	
		Zoom	(in down scale modes only)	on/off	
		Pan		+,- 640 in VGA	
				+,- 320 in 720	
		Tilt		+,- 640 in VGA	
				+,- 320 in 720	

Menu Tier	Item	Sub Item	Sub sub item	Values	Default
5	Set to Defaults				
		InterTest			
		Reset to Defaults			
		Confirm			
		Return to Main			

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Care & Maintenance

Overall System

- Do not expose to moisture or direct sunlight.
- Do not operate near intense electromagnetic fields.

Trouble Shooting

- Ensure camera connection is tight and secure.
- Ensure power is proper voltage and current for unit, and connection is tight and secure.
- Ensure DVI connection is tight and secure.
- Ensure a proper lens is in place on camera.
- Ensure all menu settings are as desired and correct for equipment in use.
- Restart - disconnect power supply and reconnect power supply

Returns for Repair or Service

In the event the product needs repair, send it to the Service Department at the main office in Columbia, NJ. An RMA (Return Material Authorization Number) must be issued prior to the unit being returned. **Call InterTest, Inc. at (908) 294-8008 to obtain an RMA Number** from customer service. Shipments returned without an RMA will have an administrative fee applied to the transaction.



Provide the product number, serial number and a brief description of the problem or damage when obtaining an RMA number

Return Evaluation Procedure

Once a return is received by InterTest, Inc. it will be evaluated. The fee for any repair evaluation not sent in under warranty is \$55 (USD credited against cost of repair). This cost is in addition to any other charges required. Prior to any repairs being completed, a repair evaluation will be issued and payment arranged. Payment via credit card is preferred and will expedite the repair process.

Once payment is arranged, the authorization to repair the product is given. Completed repairs will ship back to the customer using the pre-arranged shipping methods.

For Service of this product:

InterTest, Inc.

303 State Route 94

Columbia, NJ 07832

1-800-535-3626

+1 908 496 8008

<http://www.intertest.com>



Parts and Accessories

Intertest PN	Description
EM15472	SeeUV PoleCam HD 1000 Cam Head, 6ft POLE
EM16312	0 DEG Optical Adapter, PoleCam HD
EM15475	45 DEG Optical Adapter, PoleCam HD
EM16313	60 DEG Optical Adapter, PoleCam HD
EM16314	90 DEG NARROW Optical Adapter, Pole
EM15477	90 DEG WIDE Optical Adapter, PoleCam HD
EM16937	DVI (M) to HDMI (F) Type A Adapter
EM15018	POLECAM SLIDE FIXTURE, 51" RANGE
EM15455	iShot See UV PoleCam HD 1000 Dual LS
EM15446	iShot See UV PoleCam HD 1000 CCU
EM17063	MARSHALL 17.3" PRO LCD RACKMOUNT MONITOR
EM14032	IP Multi-format Test Monitor
EM17405	POLECAM HD CART CONTROLLER, OSD



Admin Section

This section of the manual is intended for high level users that take responsibility for use at an OEM level. Settings, programming, and remote communication through RS 485 allow expanded use.

Caution: users at this level are beyond warranty coverage. Contact InterTest tech support for further details.

Dip Switch Settings

This list documents the DIP Switch functions on the SCB300 board.

Number	On	Off	FirstVersion	
Firmware version: 1.06				
1	Show Company Name on OLED	Don't show	0	
2	N/A	N/A	0.56	(Used to show serial number or not in Utility menu, removed for Lens Correction)
3	N/A	N/A		
4	N/A	N/A		
5	N/A	N/A		
6	AEQ Report Mode	Normal Mode	1.03	Set to On to use cable testing mode. Follow supplied procedure.
7	DS954 (New Serdes FW)	DS914 (Old Serdes FW)	1.02	With DIP8 set to OFF this selects old or new SerDes firmware to upgrade.
8	Regular Run Mode	Firmware Upgrade Mode	1.02	Set this to Off to upgrade Firmware; ON to use the system normally.

Main Menu

Line	Text	Notes	FirstVersion
0	** Intertest QN HD **		0
1	Main Menu	Top level menu	0
2	Image Quality	Image quality related	0
3	Capture Setup	Image capture related: FPS, Exposure, Mirroring	0
4	Utility Menu	LED Level, Diagnostics, Save Preset, Load Preset	0
5	Pan-Tilt-Zoom	Resolution, Zoom, Pan, Tilt	0
6			
7	Reset to defaults		0
	Bold-Italics means item is a submenu		
	Control ID provided for commands that go to the ISP		



PoleCam HD Cart System Instruction & Admin Manual

Image Menu

Line	Text	Control ID	Notes	Default	FirstVersion
0	** Intertest QN HD **				
1	Image Quality			Default	FirstVersion
2	Brightness	0x01	Brightness adjustment	0x80	0
3	Contrast	0x02	Contrast adjustment	19	0 Default changed in 0.58
4	Saturation	0x03	Saturation adjustment	0x1F	0
5	Sharpness	0x05	Sharpness adjustment	5	0 Default changed in 0.58
6	More ...		More adjustments in this submenu		0
7	Return to Main		Return to Main menu		0
<i>Bold-Italics means item is a submenu</i>					
Control ID provided for commands that go to the ISP					

More Image Quality

Line	Text	Control ID	Notes	Default	FirstVersion
0	** Intertest QN HD **				0
1	More Image Quality...				0
2	White Balance Mode	0x0C	Auto/Manual		0
3	White Balance Level	0x0D	Blue <----> Red		0
4	Gamma	0x06	Non-linear gain	0x00	0
5	Hue	0x17	Hue adjustment	0x00	0
6					Compression removed 0.58
7	Return to Image Quality				0
<i>Bold-Italics means item is a submenu</i>					
Control ID provided for commands that go to the ISP					
Yellow highlighted cells denote controls that are new in this version.					

Capture Menu

Line	Text	Control ID	Default	Notes	Default	FirstVersion
0	** Intertest QN HD **					
1	Capture Menu					
2	Mirroring	0x04		None, H, V, HV	0x00	0
3	Frame Rate	0x0A		1-30fps in 1080, 1-60 in 720, 1-120 in 480	0x00	0
4	Exp ROI: Full, Mid, Center	0x10, 0x11, 0x12, 0x13		Full = 5x5 equally weighted; Middle = Central 3x3 extra weighted; Center = Central 1x1 extra weighted		0
5	Exp Time: Auto/Manual	0x15		Choose Automatic or set the exposure time {1s, 1/2s, 1/3 1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/15, 1/20, 1/25, 1/30, 1/50, 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/5000, 1/10000, 1/20000, 1/30000s}		0
6						
7	Return to Main					0
<i>Bold-Italics means item is a submenu</i>						
Control ID provided for commands that go to the ISP						
Yellow highlighted cells denote controls that are new in this version.						
First version is the first version that that particular line's description is valid for						



PoleCam HD Cart System Instruction & Admin Manual

Utility Menu

Line	Text	Control ID	Notes	Default	FirstVersion
0	** Intertest QN HD **				0
1	Utility Menu				0
2	LED Level	N/A	Off-10 where 10=1A. Works for LEDs upto a total of <8V in series.		0
3	<i>Diagnostics</i>	N/A	I2C Test, Lock Status, PCB Temp		0
4	<i>Save Preset</i>	N/A	4 user presets		0
5	<i>Load Preset</i>	N/A	4 user presets		0
6	<i>Lens Correction</i>	N/A	New in 0.56, replaces Serial Number		0.56
7	Return to Main				0
	<i>Bold-Italics means item is a submenu</i>				
	Control ID provided for commands that go to the ISP				

Save Preset

Line	Text	Control ID	Notes	FirstVersion
0	** Intertest QN HD **			0
1	Save Preset			0
2	User Setup 1	N/A	Save to user 1	0
3	User Setup 2	N/A	Save to user 2	0
4	User Setup 3	N/A	Save to user 3	0
5	User Setup 4	N/A	Save to user 4	0
6				
7	Return to Utility			0
	<i>Bold-Italics means item is a submenu</i>			
	Control ID provided for commands that go to the ISP			



Load Preset

Line	Text	Control ID	Notes	FirstVersion
0	** Intertest QN HD **			0
1	Load Preset			0
2	User Setup 1	N/A	Save to user 1	0
3	User Setup 2	N/A	Save to user 2	0
4	User Setup 3	N/A	Save to user 3	0
5	User Setup 4	N/A	Save to user 4	0
6				
7	Return to Utility			0
	<i>Bold-Italics means item is a submenu</i>			
	Control ID provided for commands that go to the ISP			

Diagnostics

<i>Bold-Italics means item is a submenu</i>	Each hex digit yields 4 bits in binary:		
Control ID provided for commands that go to the ISP	Dec	Hex	Binary
Interpreting I2C Error Codes:	0	0	0000
The code is presented as a 1 byte number in Hex	1	1	0001
Convert the Hex code to Binary	2	2	0010
Each bit indicates the pass/fail status of a device on the I2C bus	3	3	0011
Bit 0 = Deserializer	4	4	0100
1 = Serializer	5	5	0101
2 = MIPI Bridge	6	6	0110
3 = Image Sensor	7	7	0111
4 = DVI output chip	8	8	1000
5 = Thermometer	9	9	1001
6 = I2C DAC for LED Level control	10	A	1010
7 = EEPROM	11	B	1011
	12	C	1100
	13	D	1101
1 in the bit indicates pass.	14	E	1110
So for example 0xF7 indicates that everything passed except the image sensor.	15	F	1111



PoleCam HD Cart System Instruction & Admin Manual

PTZ Menu

Line	Text	Control ID	Notes	Default	FirstVersion
0	** Intertest QN HD **				0
1	PTZ Menu				0
2	Resolution	0x0B	however host has to query for it to take effect. In the next software update this will be auto-Available in 720/480 mode only. Currently this is set to crop only, which is zoom on or reduced FOV, and at a higher frame rate (60, 120 for 720,480 respectively). By software update it will allow the option for scaling (keep full FOV), at which point this control will do something. It is active but lined-out in the GUI right now.	0x00	0
3	Zoom	0x07	If not in 1080 and zoom is enabled then this allows horizontal pan	0x00	0.4
4	Pan	0x08	If not in 1080 and zoom is enabled then this allows vertical pan	0x00	0
5	Tilt	0x09		0x00	0
6					
7	Return to Main				0
	<i>Bold-Italics means item is a submenu</i>				
	Control ID provided for commands that go to the ISP				
	Yellow highlighted cells denote controls that are new in this version.				

Reset to Defaults

Line	Text	Control ID	Notes	FirstVersion
0	** Intertest QN HD **			0
1	Reset to Defaults			0
2	Confirm	N/A	Select confirm to reset	0
3				
4				
5				
6				
7	Return to Main		Select to exit	0
	<i>Bold-Italics means item is a submenu</i>			
	Control ID provided for commands that go to the ISP			



Lens Correction

Line	Text	Control ID	Notes	Default	FirstVersion
0	** Intertest QN HD **				0
1	Lens Correction				0
2	Lens Type	N/A	TBD	0	0
3	Color Temp	N/A	2800, 4500, 6500K options (0,1,2)	0	0
4					
5					
6					
7	Return to Utility				0
	<i>Bold-Italics means item is a submenu</i>				
	Control ID provided for commands that go to the ISP				

SCB300B Firmware Upload Procedure

The SCB300B board allows for both the old and new SerDes to be used and automatically detected when plugged in to the RJ45 jack. In order to do this we must program both the versions of the ISP (EM37180) code into the correct SPI Flash for the system to work properly. In order to make this easy there is a new firmware programming mode that has been added to the PIC firmware (v1.02+) that is accessed via the DIP switches on the SCB300B board.

To use the Firmware programming mode:

- 1. Set DIP8 to the OFF position o Normally DIP8 will be in the ON position to run the camera (Pv1.02+)
- 2. Set DIP7 to OFF for the Old 914 SerDes or to ON for the New 954 SerDes
- 3. Then power on the board using a PC
- 4. The LCD screen should show either 914 or 954 depending on what was set on DIP7
- 5. If it shows a regular main menu then DIP8 is in the ON position. Turn it off and cycle power.
- 6. Start the EM_Download_Tool software o The tool should say “USB Init OK” at the top
- 7. Select “Browse” and navigate to the supplied *914*.bin or *954*.bin file depending on which you are trying to program
- 8. Select “Download” and within ~10 seconds the download should be successfully completed
- 9. If you want to program the other SerDes then flip DIP7 and power cycle the board, following from step 3 onwards.
- 10. Once you have programmed both Flash chips set DIP8 to the ON position to enter RUN mode next time you power cycle the board.



SCB300B AEQ Procedure

The SCB300B board adds a new AEQ mode that replaces the special firmware we had for the SCB300A.

This AEQ mode is accessed by setting DIP6 to the ON position, but follow the steps below for best results.

1. Set DIP6 to the OFF position (this is normal running mode).
2. Power up the board with the camera head you wish to measure connected
3. Once the system is up and running and you see an image flip DIP6 to the On position
4. Within a few seconds you should see the LCD screen readout an AEQ value a. It will tell you which camera head was detected
 - b. If there is no camera it will say there is no lock
 - c. At this point you can unplug/replug cameras to redo AEQ measurements but the most reliable measurement is made with the camera plugged in before powering on the system, and with AEQ mode off at first and then turned on after the camera is running.
5. You can turn off AEQ mode by flipping DIP6 to the Off position. The main menu will return.

Intertest, Inc.



Model 7500

Floating Flat Panel Arm



2002
Design Award Winner

The award-winning 7500 Radial Arm is a remarkable work tool. Effortlessly position your monitor exactly where you want it, and add flexibility to your work style. Suspend your flat panel above the desk surface and reclaim your valuable space. Innovative cable management routes cables inside the arm, in order to keep your desk organized. You'll never work the old and cluttered way again!

FEATURES

- ▲ Reposition the monitor with one hand – no knobs to turn
- ▲ Extends up to 27", folds to just 3", vertical range of 18"
- ▲ Tilt monitor up to 200 degrees
- ▲ Includes FLEXmount™ – six different mounting options in one kit
- ▲ Compatible with all VESA® monitors – includes 75mm and 100mm VESA® mounting plates
- ▲ Includes cable management system – cables concealed in arm



Folds into 3" of space



18" of vertical range



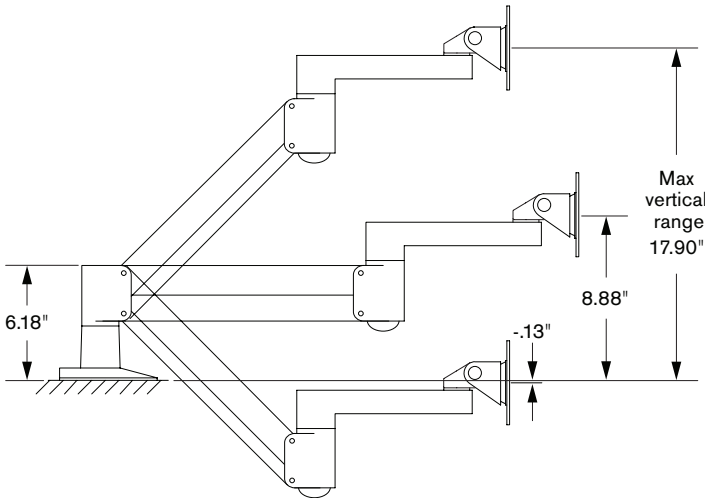
Over 200 degrees of monitor tilt



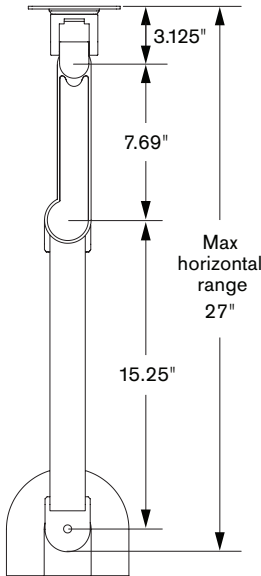
Model 7500



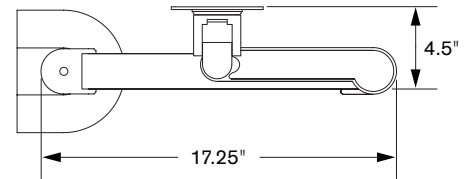
Specifications



SIDE VIEW
Vertical Range



TOP VIEW
Horizontal Range

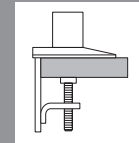


TOP VIEW
Arm Folded

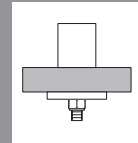
CAPABILITIES

Vertical range	18" (+/- 9" from horizontal)
Horizontal range	27"
Rotation	360 degrees at three joints
Monitor tilt	200 degrees
Monitor pivot	Landscape to portrait
Monitor compatibility	VESA® 75mm and 100mm
Cable management	Cables are concealed in arm
Mounting options	FLEXmount™, Slatwall, Wall, Thru-Desk
Monitor weight/model number	2 - 13 lbs / 7500-500
	6 - 21 lbs / 7500-800
	8 - 27 lbs / 7500-1000
	13.5 - 44 lbs / 7500-1500

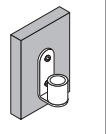
FLEXMOUNT™ CONFIGURATIONS



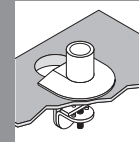
Desk Clamp



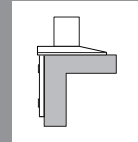
Thru-Desk



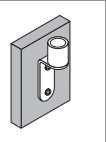
Wall



Grommet Hole



Side Bolt



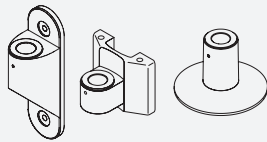
Reverse Wall

OPTIONAL ACCESSORIES



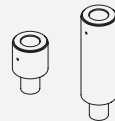
QUICK RELEASE ADAPTERS

Allows for quick attach and release of monitor (8336-QR).



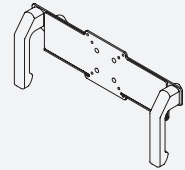
MOUNTS

Wall (8325), slatwall (8246) and thru-desk (8312).



EXTENDER TUBES

Raise the height of your arm. 2" (8171-75-2) and 6" (8171-75-6) extensions available.



HANDLE SET

Provides convenient handles to reposition monitor (8291).

Phone: 800.888.6024 | Fax: 541.779.0829 | E-mail: info@ergoindemand.com | Web: www.ergoindemand.com



UV-LED Light Source Kit



Preface

Thank you for purchasing the iShot® UV-LED Light Source Kit which utilizes state-of-the-art solid-state illumination technology. The light source is a high output, efficient, compact and lightweight fiber optic light source for industrial applications where space is a premium. The iShot® UV-LED Light Source Kit utilizes eco-friendly solid state LED lighting technology and exhibits instant-on and electronic intensity dimming capability with long operating lifetime. The iShot® UV-LED Light Source Kit is equipped with a Machida fiber receptacle. The iShot® UV-LED Light Source Kit accepts 12V DC input voltage for portable battery operation as well. Please read this operating manual in its entirety before using this product.

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System Symbol Descriptions



Caution: Consult accompanying documentation



Caution: Hot Surface



Caution



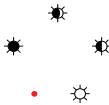
Hazard Warning



Lamp On



Lamp Off



Light; Lighting; Illumination Intensity



UV Light Warning



Storage Humidity



Transport Temperature



Alternating Current



Direct Current



Manufacturer



Do Not Immerse in Any Liquid



Do not dispose of this product as unsorted municipal waste. Prepare this product for reuse or separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE). If this product is contaminated, this directive does not apply.



Warning and Precautions / Mises en garde et précautions



**WARNING /
MISE EN GARDE**

There are no user serviceable or replacement parts. Do not attempt to dismantle box or remove top cover. / Aucune pièce ne peut être réparée ou remplacée par l'utilisateur. Ne pas essayer de démonter la boîte ou de retirer le couvercle du dessus.

**WARNING /
MISE EN GARDE**

Only qualified personnel should make electrical inspections and repair of the LED Light Source. / Seul le personnel qualifié doit effectuer les vérifications électriques et les réparations de cette source de lumière à DEL.



**WARNING /
MISE EN GARDE**

UV light is emitted from this product, Avoid eye and skin exposure to unshielded product. High intensity light at the front of the LED Light Source and at the tip of the fiber-optic bundle will create high temperatures and UV light. To minimize the risk of injury, avoid direct viewing or contact. / L'ultraviolet (UV) est émis par ce produit. Évitez le contact avec les yeux ou la peau. La lampe à haute intensité, située sur le devant de la source de lumière à DEL et sur le bout du faisceau de fibres optiques, va générer beaucoup de chaleur et une lumière vive. Afin de réduire les risques de blessures, évitez de toucher l'appareil ou d'exposer directement l'oeil à la lumière de la lampe."



**WARNING /
MISE EN GARDE**

To prevent temporary blinding and contact with heated parts, always plug the fiber optic bundle into the LED Light Source before turning the power on. / Pour éviter tout aveuglement temporaire ou contact avec les pièces chauffées, toujours brancher le faisceau de fibres optiques dans la source de lumière à DEL avant la mise en marche.

**WARNING /
MISE EN GARDE**

Do not use the LED Light Source directly in medical applications. / Ne pas utiliser une source de lumière à DEL directe à des fins médicales.



**WARNING /
MISE EN GARDE**

Unit MAY BE HOT. Allow to cool before handling. / L'appareil PEUT ÊTRE CHAUD. Il est important de le laisser refroidir avant d'y toucher.



**CAUTION /
AVERTISSEMENT**

Preferred operation is in the horizontal position. Other operating orientations are permitted. / L'appareil fonctionne de façon optimale à l'horizontale. Les autres orientations sont permises.

**CAUTION /
AVERTISSEMENT**

Any changes or modifications made to this device that are not expressly approved by manufacturer may void the user's authority to operate the equipment. / Toute modification apportée à cet appareil et non expressément approuvée par le fabricant peut priver l'utilisateur de son droit d'usage.

**CAUTION /
AVERTISSEMENT**

PROVIDE ADEQUATE VENTILATION TO PREVENT OVER HEATING. Do not drape this light source. Provide a 1.5 inch (3.8 cm) distance between LED Light Source and any solid objects. / **ASSURER UNE VENTILATION ADEQUATE AFIN D'ÉVITER LA SURCHAUFFE DE L'APPAREIL.** Ne pas couvrir la source de lumière. Laisser au moins 3,8 cm (1,5 po) de distance entre la source de lumière à DEL et tout objet.



**CAUTION /
AVERTISSEMENT**

DO NOT IMMERSE or store liquids above or on the LED Light Source. / **NE PAS IMMERGER** la source de lumière à DEL dans des liquides ou placer des liquides au-dessus de celle-ci.

**CAUTION /
AVERTISSEMENT**

Do not operate device without the cover in place. / Ne pas faire fonctionner l'appareil sans son couvercle.

**CAUTION /
AVERTISSEMENT**

DO NOT obstruct the airway paths for sufficient cooling is required. / **NE PAS obstruer** les voies d'aération afin de permettre le refroidissement adéquat de l'appareil.

**CAUTION /
AVERTISSEMENT**

Please read this entire manual prior to operation. / Lire le présent guide en entier avant d'utiliser l'appareil.



**CAUTION /
AVERTISSEMENT**

Protection provided by the equipment maybe impaired if not used in accordance with the manufacture recommendations. / La protection assurée par l'équipement risque d'être altérée si l'appareil n'est pas utilisé conformément aux recommandations du fabricant.



System Description and Operation

1. The light source power switch should be in the OFF position. Plug the external 12vdc power supply into the 12vdc connector. **Figure 1.**
2. Plug the external power supply cord into AC receptacle main power.
3. Plug the fiber-optic bundle into the light port and connect the opposite end to the equipment being used. **Figure 2.**
4. Turn the power switch to the ON position. LED indicator light will turn on when light source is powered. **Figure 3.**
5. Adjust the intensity control to set the light intensity to the desired light output level. **Figure 3.**
6. Turn unit OFF when not in use. **Figure 3.**
7. This unit is equipped with a fiber sense interlock feature. The device will not emit light unless fiber cable is completely inserted into the front adapter. Please ensure fiber cable is fully seated into receptacle.

Figure 1. Back View

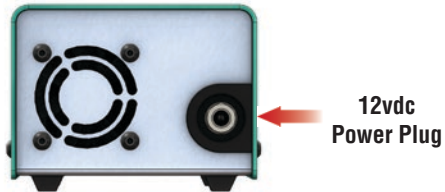


Figure 2. Fiber-Optic Bundle

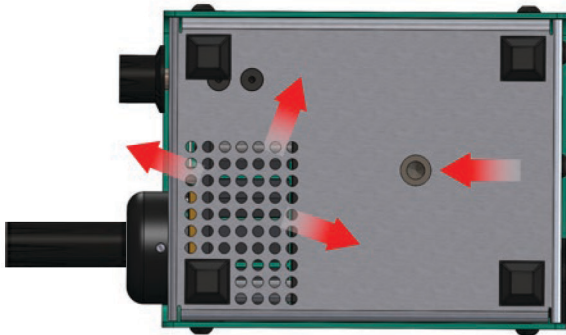
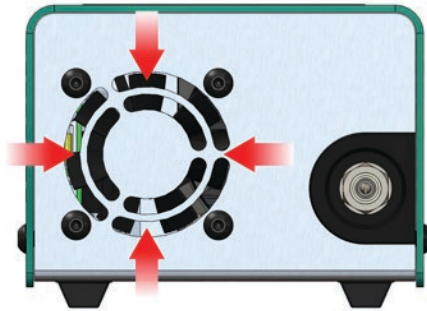
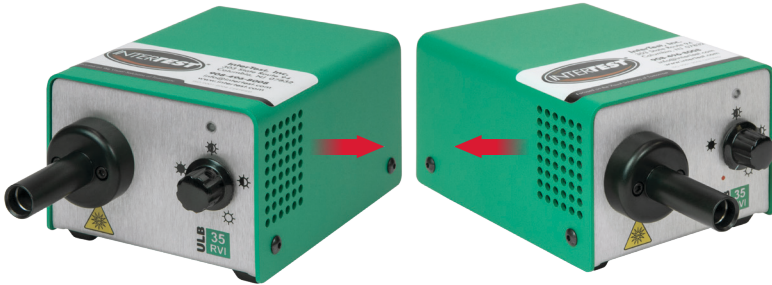


Figure 3. Front View



Figure 4. Cooling and Air Flow Paths

1. Do not obstruct air flow paths. This device is designed to have proper forced air cooling paths to maintain thermal stable operation.
2. Place in an area that provides adequate ventilation to prevent unit from overheating. Do not drape the LED Light Source with cloth or objects restricting airflow.
3. Airflow outlets are shown in below red arrow graphics.
4. 1/4-20 UNC mounting stud located in the middle of box bottom side.



**Threaded
Mounting Stud:
1/4-20 UNC**

Maintenance and Cleaning



1. Turn the LED Light Source off and unplug the power cord from both the wall outlet and the rear of the unit.
2. Wipe the external surfaces clean with a cloth dampened with mild soap and water. **DO NOT IMMERSE.**
3. Wipe the power cords clean with a cloth dampened with mild soap and water. **DO NOT IMMERSE. DO NOT RECONNECT WET.**
4. DO NOT plug the power source into a wall outlet until it is thoroughly dry.
5. It is recommended to periodically clean the optical surface near the LED. Please use a soft cotton swab dipped in Isopropyl Alcohol and wipe the optic surfaces and allow to thoroughly dry prior to use.

Troubleshooting Suggestions

In the event the unit stops functioning, try the following steps to operate light source. The power supply exhibits internal protection circuitry for user safety precautions and will shutdown during certain instances. This equipment has been tested to ESD conditions according IEC 61326-1 and performs to performance criterion C. This means, that under certain conditions the overvoltage protection of the power supply may turn the power supply output and the unit off to prevent damage to the unit. In such case the power supply must be disconnected from main power to reset this fault condition. In the event the unit suddenly turns off, turn the unit off. Unplug the power supply from mains voltage (120V/ 230V). Wait ~5 seconds and plug the power supply back into mains voltage. Turn the unit on.

1. Turn OFF light source by rotating intensity control knob counterclockwise until the switch clicks off.
2. Completely disconnect power supply from both light source and mains (power plug into ac outlet).
3. Wait for ~5 seconds until power supply discharges as observed on the power supply LED indicator will turn off.
4. Reconnect power supply to both ac to main voltage and dc connector to light source.
5. Turn ON light source by rotating knob clockwise until clicks on and LED indicator light is on.
6. Insert fiber cable completely to deactivate fiber sense interlock feature.
7. Rotate knob to increase light output intensity to desired output.

Repair

For repair information, please contact our team at:

Phone: Office: 908-496-8008

Email: support@intertest.com



Manufacture Information

Supplier Name: USHIO America, Inc.
Address: 5440 Cerritos Ave.
Cypress, CA 90630

Model or Type: ULB-35rvi




Environment Ratings

Operating Temperature: 41° F to 104° F (5° C to 40° C)
Humidity: 0 to 95% rh (non-condensing)
Storage Temperature: -10° F to 140° F (-20° C to 60° C)
Humidity: 30 to 75% rh
Atmospheric Pressure: 700 hpa to 1060 hpa
Mode of Operation: Continuous
Safety System Classification: Class II
System Pollution Degree: 2
Installation Category: II

Electrical Ratings

External Power Supply Ratings:

Input: 100 - 240 V~, 50/60 Hz, 1.4 A max
Output: +12 V , 5.0 A
Recommended PS: UAI Part: UPS-00

ULB-35 Power Ratings:

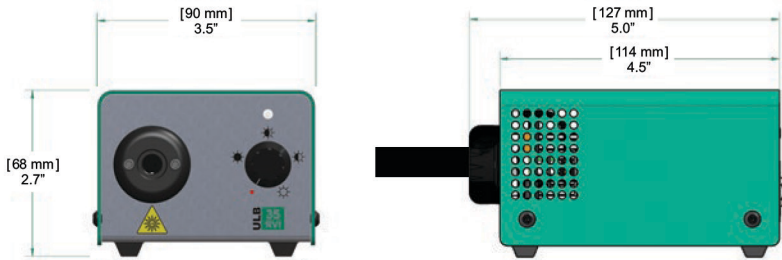
Voltage: +12V DC; 14V DC maximum
Current: 5.0 amp

Battery: USHIO America, Inc. recommends using a UR (or other recognized testing laboratory) recognized battery rated at 12V/8Ahr or equivalent with a minimum 5.0 amp current limit rating.



Dimensions

Length:	127MM (5.0")
Width:	90MM (3.5")
Height:	68MM (2.7")
Weight:	0.45 kg (1.0 lbs)



Illumination Source

Type:	LED Custom Module
Wavelength:	365-370nm Peak
Power:	50 Watts
Average LED Life*:	10,000+ Hours

* Based on LED manufacturer rated wattage and thermal operation.

Product Ordering Information

Part Number	Description
EM14466	35W RVI UV LED Light Source, Machida
EM66693	Universal Input Power Supply (60W 12V P/S)
EM11890	US power cord (NEMA 5-15P to IEC C13)



Approvals



The CE mark on this product indicates that it has been tested to and conforms to the provisions noted within the following directives:

Low Voltage: 2014/35/EU
EMC: 2014/30/EU
RoHS 2: 2011/65/EU

In accordance with the following standards:

EN 61010-1
IEC 61326-1
EN 61326-1
IEC/EN 61000 3-2
IEC/EN 61000 3-3
EN 50581
IEC/EN 62471:2006 LED Photobiological safety lamp standard, categorized as Risk Group 3 (High-Risk).



Intertek
4009043

Conforms to UL Std 61010-1
Certified to CSA Std C22.2 No. 61010-1



WEEE
(www.lamprecycle.org)

Limited Warranty

USHIO America warrants the LED Light Source, when new, to be free of defects in material and workmanship and to perform in accordance with the manufacturer's specifications when subject to normal use and service for a period of one year from the date of purchase from USHIO America or an authorized agent. USHIO America will either repair or replace any components found to be defective or at variance from the manufacturer's specifications within this time at no cost to the customer. It shall be the purchaser's responsibility to return the instrument to the authorized distributor, agent, or service representative.

This limited warranty does not cover the breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service, and cleaning procedures. This limited warranty is also void if the instrument is not used in accordance with the manufacturer's recommendations or if required service is performed by anyone other than USHIO America or an authorized agent. The purchase date determines limited warranty requirements. No other express or implied limited warranty is given.



Agency Compliance Statements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Class A Compliance Statement

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



CAUTION

Any changes or modifications made to this device that are not expressly approved may void the user's authority to operate the equipment.

NOTE

To maintain compliance with FCC Rules and Regulations, cables connected to this device must be shielded cables, in which the cable shield wire(s) have been grounded (tied) to the connector shell.

Canadian Notice

This equipment does not exceed the Class A limits for radio noise emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.



Sold By:



www.intertest.com

303 State Route 94
Columbia, NJ 07832 USA
Office: 908-496-8008
Toll Free (U.S.): 800-535-3626
Fax: 908-496-8004



MADE IN USA

Rev1-092017

MIDORI™

ULB-35 SERIES LED LIGHT SOURCE



OPERATING MANUAL

Preface

Thank you for purchasing the Midori™ fiber optic illuminator which utilizes state-of-the-art solid-state illumination technology. The light source is a high output, efficient, compact and lightweight fiber optic light source for industrial applications where space is a premium. The ULB-35 series fiber illuminators utilize eco-friendly solid state LED lighting technology, exhibits instant-on and electronic intensity dimming capability with long operating lifetime. The Midori™ ULB-35 LED fiber illuminator is equipped with an ACMI fiber receptacle with separate Storz and Olympus style screw-in adapters available to accommodate these other common fiber cable types. The ULB-35 accepts 12V DC input voltage for portable battery operation as well. Please read this operating manual in its entirety before using this product.

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System Symbol Descriptions



Caution: Consult accompanying documentation



Caution: Hot Surface



Caution



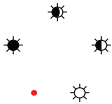
Hazard Warning



Lamp On



Lamp Off



Light; Lighting; Illumination Intensity



Bright Light



Storage Humidity



Transport Temperature



Alternating Current



Direct Current



Manufacturer



Do Not Immerse in Any Liquid



Do not dispose of this product as unsorted municipal waste. Prepare this product for reuse or separate collection as specified by Directive 2002/96/EC of the European Parliament and the Council of the European Union on Waste Electronic and Electrical Equipment (WEEE). If this product is contaminated, this directive does not apply.

Warning and Precautions / Mises en garde et précautions



WARNING /
MISE EN GARDE

There are no user serviceable or replacement parts. Do not attempt to dismantle box or remove top cover. / Aucune pièce ne peut être réparée ou remplacée par l'utilisateur. Ne pas essayer de démonter la boîte ou de retirer le couvercle du dessus.

WARNING /
MISE EN GARDE

Only qualified personnel should make electrical inspections and repair of the LED Light Source. / Seul le personnel qualifié doit effectuer les vérifications électriques et les réparations de cette source de lumière à DEL.



WARNING /
MISE EN GARDE

The high intensity light at the front of the LED Light Source and at the tip of the fiber-optic bundle will create high temperatures and bright light. To minimize the risk of injury, avoid direct viewing or contact. / La lampe à haute intensité, située sur le devant de la source de lumière à DEL et sur le bout du faisceau de fibres optiques, générera beaucoup de chaleur et une lumière vive. Afin de réduire les risques de blessures, éviter de toucher l'appareil ou d'exposer directement l'œil à la lumière de la lampe.

WARNING /
MISE EN GARDE

To prevent temporary blinding and contact with heated parts, always plug the fiber optic bundle into the LED Light Source before turning the power on. / Pour éviter tout aveuglement temporaire ou contact avec les pièces chauffées, toujours brancher le faisceau de fibres optiques dans la source de lumière à DEL avant la mise en marche.

WARNING /
MISE EN GARDE

Do not use the LED Light Source directly in medical applications. / Ne pas utiliser une source de lumière à DEL directe à des fins médicales.



WARNING /
MISE EN GARDE

UNIT MAY BE HOT. Allow to cool before handling. / L'appareil PEUT ÊTRE CHAUD. Il est important de le laisser refroidir avant d'y toucher.



CAUTION /
AVERTISSEMENT

Preferred operation is in the horizontal position. Other operating orientations are permitted. / L'appareil fonctionne de façon optimale à l'horizontale. Les autres orientations sont permises.

CAUTION /
AVERTISSEMENT

Any changes or modifications made to this device that are not expressly approved by manufacturer may void the user's authority to operate the equipment. / Toute modification apportée à cet appareil et non expressément approuvée par le fabricant peut priver l'utilisateur de son droit d'usage.

CAUTION /
AVERTISSEMENT

PROVIDE ADEQUATE VENTILATION TO PREVENT OVER HEATING. Do not drape this light source. Provide a 1.5 inch (3.8 cm) distance between LED Light Source and any solid objects. / ASSURER UNE VENTILATION ADEQUATE AFIN D'ÉVITER LA SURCHAUFFE DE L'APPAREIL. Ne pas couvrir la source de lumière. Laisser au moins 3,8 cm (1,5 po) de distance entre la source de lumière à DEL et tout objet.



CAUTION /
AVERTISSEMENT

DO NOT IMMERSE or store liquids above or on the LED Light Source. / NE PAS IMMERGER la source de lumière à DEL dans des liquides ou placer des liquides au-dessus de celle-ci.

CAUTION /
AVERTISSEMENT

Do not operate device without the cover in place. / Ne pas faire fonctionner l'appareil sans son couvercle.

CAUTION /
AVERTISSEMENT

DO NOT obstruct the airway paths for sufficient cooling is required. / NE PAS obstruer les voies d'aération afin de permettre le refroidissement adéquat de l'appareil.

CAUTION /
AVERTISSEMENT

Please read this entire manual prior to operation. / Lire le présent guide en entier avant d'utiliser l'appareil.



CAUTION /
AVERTISSEMENT

Protection provided by the equipment maybe impaired if not used in accordance with the manufacture recommendations. / La protection assurée par l'équipement risque d'être altérée si l'appareil n'est pas utilisé conformément aux recommandations du fabricant.

System Description and Operation

1. The light source power switch should be in the OFF position. Plug the external 12vdc power supply into the 12vdc connector. **Figure 1.**
2. Plug the external power supply cord into AC receptacle main power.
3. Plug the fiber-optic bundle into the light port and connect the opposite end to the equipment being used. **Figure 2.**
4. Turn the power switch to the ON position. LED indicator light will turn on when light source is powered. **Figure 3.**
5. Adjust the intensity control to set the light intensity to the desired light output level. **Figure 3.**
6. Turn unit OFF when not in use. **Figure 3.**

Figure 1. Back View

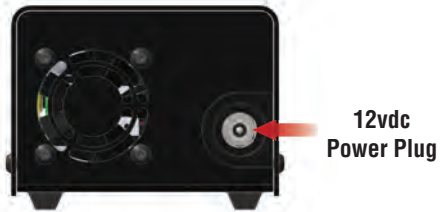


Figure 2. Fiber-Optic Bundle

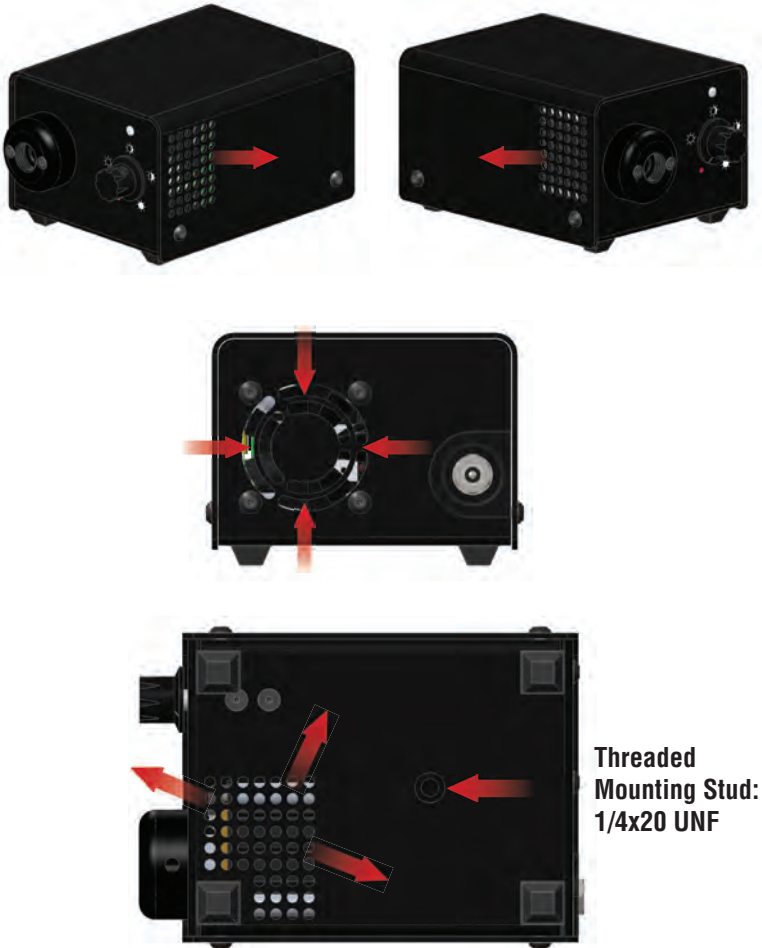


Figure 3. Front View



Figure 4. Cooling and Air Flow Paths

1. Do not obstruct air flow paths. This device is designed to have proper forced air cooling paths to maintain thermal stable operation.
2. Place in an area that provides adequate ventilation to prevent unit from overheating. Do not drape the LED Light Source with cloth or objects restricting airflow.
3. Airflow outlets are shown in below red arrow graphics.
4. 1/4-20 UNF mounting stud located in the middle of box bottom side.



Maintenance and Cleaning



1. Turn the LED Light Source off and unplug the power cord from both the wall outlet and the rear of the unit.
2. Wipe the external surfaces clean with a cloth dampened with mild soap and water. **DO NOT IMMERSE.**
3. Wipe the power cords clean with a cloth dampened with mild soap and water. **DO NOT IMMERSE. DO NOT RECONNECT WET.**
4. **DO NOT** plug the power source into a wall outlet until it is thoroughly dry.
5. It is recommended to periodically clean the reflective optical surface near the LED. Please use a soft cotton Q-tip dipped in Isopropyl Alcohol and wipe the reflective optic surfaces and allow to thoroughly dry prior to use.

Troubleshooting Suggestions

In the event the unit stops functioning, try the following steps to operate light source. The power supply exhibits internal protection circuitry for user safety precautions and will shutdown during certain instances. This equipment has been tested to ESD conditions according to IEC 61326-1 and performs to performance criterion C. This means, that under certain conditions the overvoltage protection of the power supply may turn the power supply output and the unit off to prevent damage to the unit. In such case the power supply must be disconnected from main power to reset this fault condition. In the event the unit suddenly turns off, turn the unit off. Unplug the power supply from mains voltage (120V/ 230V). Wait ~5 seconds and plug the power supply back into mains voltage. Turn the unit on.

1. Turn OFF light source by rotating intensity control knob counterclockwise until the switch clicks off.
2. Completely disconnect power supply from both light source and mains (power plug into ac outlet).
3. Wait for ~5 seconds until power supply discharges as observed on the power supply LED indicator will turn off.
4. Reconnect power supply to both ac to main voltage and dc connector to light source.
5. Turn ON light source by rotating knob clockwise until clicks on and LED indicator light is on.
6. Rotate knob to increase light output intensity to desired output.

Repair

For repair information, please contact Customer Service at:

Telephone: (714) 236-8600

Email: customerservice@ushio.com

Manufacture Contact Information

Supplier Name:	Ushio America, Inc.
Address:	5440 Cerritos Ave. Cypress, CA 90630
Telephone:	714-236-8600
Email	customerservice@ushio.com
Website:	www.ushio.com
Model or Type:	ULB-35



Environment Ratings

Operating Temperature:	41° F to 104° F (5° C to 40° C)
Humidity:	0 to 95% rh (non-condensing)
Storage Temperature:	-10° F to 140° F (-20° C to 60° C)
Humidity:	30 to 75% rh
Atmospheric Pressure:	700 hpa to 1060 hpa
Mode of Operation:	Continuous
Safety System Classification:	Class II
System Pollution Degree:	2
Installation Category:	II

Electrical Ratings

External Power Supply Ratings:

Input:	100 - 240 V~, 50/60 Hz, 1.4 A max
Output:	+12 V $\overline{\text{---}}$, 5.0 A
Recommended PS:	UAI Part: UPS-00

ULB-35 Power Ratings:

Voltage:	+12V DC; 14V DC maximum
Current:	3.4 amp

Battery: Ushio America, Inc. recommends using a UR (or other recognized testing laboratory) recognized battery rated at 12V/9Ah or equivalent with a minimum 3.5 amp current limit rating.

Dimensions

Length:	127MM (5.0")
Width:	90MM (3.5")
Height:	68MM (2.7")
Weight:	0.45 kg (1.0 lbs)



Illumination Source

Type:	LED Custom Module
Color Temperature:	5700 K - 6500 K Nominal
Power:	35 Watts
Average LED Life*:	50,000+ Hours

* Based on LED manufacturer rated wattage and thermal operation.

Product Ordering Information

Product ID	Description	Order Code
ULB-35p	35W LED Light Source; OEM Black	1003883
UPS-00	Universal Input Power Supply	1003879
UPC-US	US power cord; EN60320-C7	1003881
UPC-EU	EU Power cord EN60320-C7	1003880
UPC-UK	UK Power cord EN60320-C7	1003882
UPC-AU	AU Power Cord; EN60320-C7	1004095
50159	Storz Fiber Adapter; screw-in	50159
50160	Olympus Fiber Adapter; screw-in	50160
LB-CLP	12vdc Car Power Plug Adapter	LB-CLP
UAC-01	Portable Light Case	5002496
UPS-03	12vdc LiP Battery Pack	5002493

Approvals



The CE mark on this product indicates that it has been tested to and conforms to the provisions noted within the following directives:

Low Voltage: 2014/35/EU
EMC: 2014/30/EU
RoHS 2: 2011/65/EU

In accordance with the following standards:

EN61010-1
IEC 61326-1
EN 61326-1
IEC 62471
IEC/EN 61000 3-2
IEC/EN 61000 3-3
EN 50581



Intertek
4009043

Conforms to UL Std 61010-1
Certified to CSA Std C22.2 No. 61010-1



WEEE
(www.lamprecycle.org)

Limited Warranty

USHIO America warrants the LED Light Source, when new, to be free of defects in material and workmanship and to perform in accordance with the manufacturer's specifications when subject to normal use and service for a period of two years from the date of purchase from USHIO America or an authorized agent. USHIO America will either repair or replace any components found to be defective or at variance from the manufacturer's specifications within this time at no cost to the customer. It shall be the purchaser's responsibility to return the instrument to the authorized distributor, agent, or service representative.

This limited warranty does not cover the breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service, and cleaning procedures. This limited warranty is also void if the instrument is not used in accordance with the manufacturer's recommendations or if required service is performed by anyone other than USHIO America or an authorized agent. The purchase date determines limited warranty requirements. No other express or implied limited warranty is given.

Agency Compliance Statements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Class A Compliance Statement

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



CAUTION

Any changes or modifications made to this device that are not expressly approved may void the user's authority to operate the equipment.

NOTE

To maintain compliance with FCC Rules and Regulations, cables connected to this device must be shielded cables, in which the cable shield wire(s) have been grounded (tied) to the connector shell.

Canadian Notice

This equipment does not exceed the Class A limits for radio noise emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

V-LCD173HR

17.3" Professional LCD Rack Mount / Desktop Monitor



USER MANUAL

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IMPORTANT SAFETY INSTRUCTIONS:



The **V-LCD173HR 17.3" LCD Monitor** has been tested for conformance to safety regulations and requirements and has been certified for international use. However, like all electronic equipment, the V-LCD173HR should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

1. Introduction, Installation and Setup

■ Introduction and Installation

The **V-LCD173HR 17.3" LCD Monitor** can be mounted in any standard EIA 19" equipment rack. The attached rack ears can be angled to provide the user control over the viewing angle. Adequate ventilation is required when installed to prevent possible damage to the monitor's internal components. Both VESA standard 75mm and 100mm hole pattern allow for custom mounting installations.

■ Package Contents

- 1x V-LCD173HR 17.3" LCD Monitor
- 1x DC Adapter
- 1x TALLY Connector

NOT INCLUDED:

- Optional Marshall "V-ST15" base mount for desktop use
- (4) M4 screws needed to install "V-ST15" base mount

■ Connections, Power-On, and Initial Setup

Plug the power supply into an AC power source. Attach the power connector to the back of the monitor. Connect the required cables for video signal input and output. (Power must be supplied to the V-LCD173HR to activate the loop-through output.) The monitor defaults to 'ON' when power is supplied. Choose the desired signal source by selecting the "SDI", "HDMI" or "VIDEO" button on the front bezel.

2. Panel Features

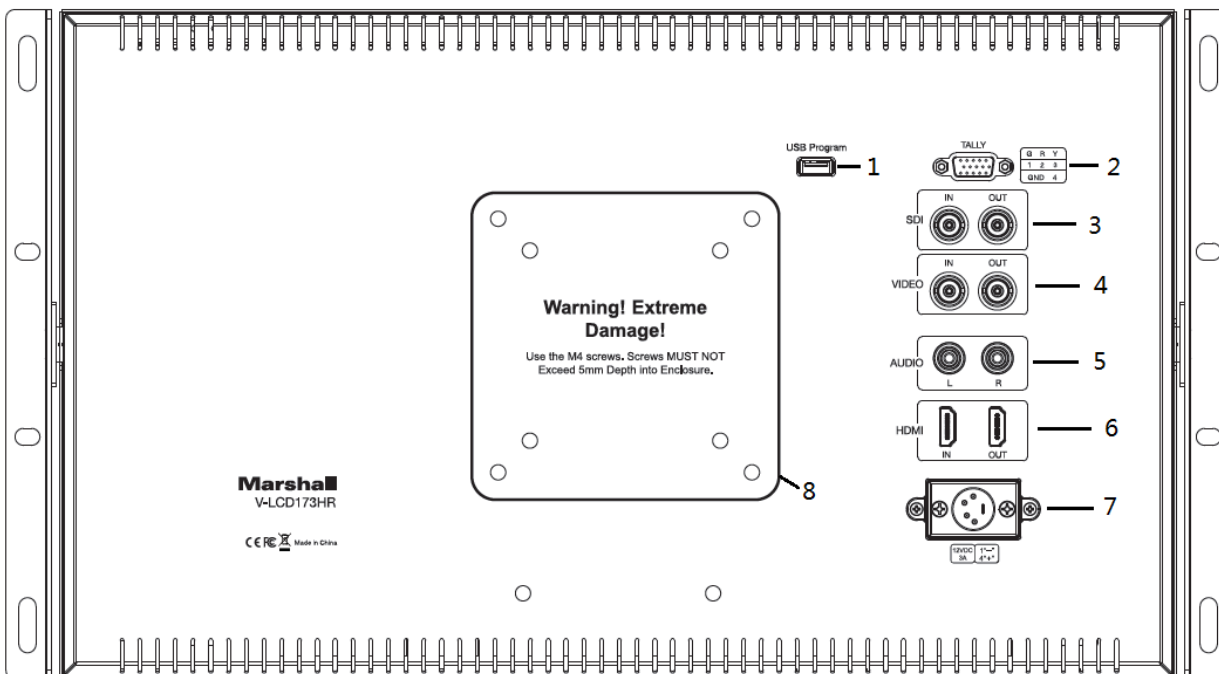
Top and Front Panel Features



<p>1 – Rack Mount Ears: Use rack mount ears to mount 6RU racks or other display applications.</p>	<p>5 – Video Buttons: Indicator lights up when signal switches to VIDEO state.</p>
<p>2 – SDI Button: Indicator lights up when signal switches to SDI state.</p>	<p>6 – Menu Navigation Knob: Turn first for Volume, Brightness, etc or press first for Main Menu.</p>

<p>3 – HDMI Button: Indicator lights up when signal switches to HDMI state.</p>	<p>7 – Headphone Jack: Standard 3.5mm stereo mini-phone plug can be used.</p>
<p>4 – User-Definable Function Buttons: Functions can be customized by pressing any User button for 3-5 seconds. These user-definable function buttons are assigned using the on-screen direct access menu.</p>	<p>8 – Power Button: Use the power button to switch the screen ON and OFF.</p>
<p>Default User Function Options: F1: Aspect Ratio F2: Histogram F3: False Color</p>	

Rear Panel Features

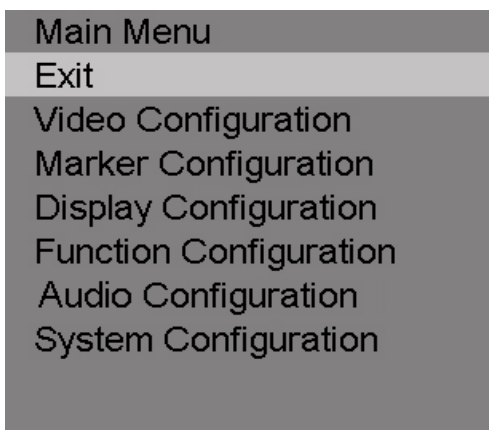


<p>1 – USB Interface: Only for program upgrades. NOT to be used for non-professional use.</p>	<p>5 – Analog Audio “RCA” Connectors: Left and right audio inputs are active when “Video” is selected as the video source. This audio may be monitored at the headphone jack connection.</p>										
<p>2 – Tally Input Connector: The LED tally can be activated by connecting the corresponding pin to ground. A variety of external devices can be used to perform the contact closure. No additional power should be supplied to the HD-15 port. See pinout guide next to connector.</p>	<p>6 – HDMI Digital Video Connectors: HDMI video input and loop output. Embedded audio may be monitored at the headphone jack connection and visually monitored on-screen.</p>										
<p>3 – Serial Digital “BNC” Connectors: SDI input and loop output are compatible with SDI, HDSDI and 3GSDI inputs. Embedded audio may be monitored at the headphone jack connection and visually monitored on-screen.</p>	<p>7 – 4-Pin Power Connector:</p> <table border="1" data-bbox="1011 1621 1361 1778"> <thead> <tr> <th>Pin number</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>①</td> <td>GND</td> </tr> <tr> <td>②</td> <td>No connection</td> </tr> <tr> <td>③</td> <td>No connection</td> </tr> <tr> <td>④</td> <td>+12V</td> </tr> </tbody> </table> <p>To be used with 12-volt power supplies only. Caution: 24 volts 4-pin power supplies are NOT compatible with this monitor. Please check label on the power supply before connecting.</p>	Pin number	Signal	①	GND	②	No connection	③	No connection	④	+12V
Pin number	Signal										
①	GND										
②	No connection										
③	No connection										
④	+12V										
<p>4 – Composite Analog “BNC” Connectors: Video input and loop output are used for NTSC or PAL composite (CVBS) video sources.</p>	<p>8 – VESA 75mm and 100mm Hole Patterns: VESA-standard hole-patterns (75mm and 100mm) are provided to accommodate a variety of custom mounting options.</p>										

3. Navigation Menu

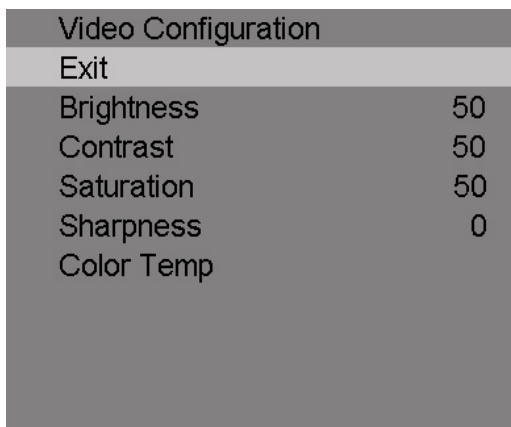
Main Menu: Push the MENU control button on the monitor to adjust the function configurations. To change configurations, select a configuration from the main menu by turning the knob and pressing the menu button once to select. Edit configuration by turning knob to change levels, then press menu button again to confirm the changes. Repeat with each selection as needed.

3.1 Main Menu Navigation



Press the MENU knob on the monitor and function menus will pop-up on the screen. Rotate left or right to select an option. Then press the knob again to open the selection. When an arrow pointer appears in the menu, turn the Menu knob again to access the item or to confirm a selection.

3.2 Video Configuration Submenu



ITEMS	OPTIONS
Video Configuration	
Exit	
Brightness	0 – 100 (50 is default)
Contrast	0 – 100 (50 is default)
Saturation	0 – 100 (50 is default)
Sharpness	0 – 100 (0 is default)
Color Temp (White Bal)	6500K, 7300K, 9300K, User

	Color Temp R	0 – 255	Note: These three items appear when “User” mode is selected.
	Color Temp G	0 – 255	
	Color Temp B	0 – 255	

■ **Brightness**

The Brightness level ranges from 0 to 100.

■ **Contrast**

The Contrast level ranges from 0 to 100.

■ **Saturation**

The Saturation level ranges from 0 to 100.

■ **Sharpness**

The Sharpness level ranges from 0 to 100.

■ **Color Temp**

Choose one of three color temperature presets (6500K, 7300K or 9300K) or define the color with the USER mode.

3.3 Marker Configuration Submenu

Marker Configuration	
Exit	
Center Marker	OFF
Aspect Marker	OFF
Safety Marker	OFF
Marker Color	Red
Marker Mat	1
Thickness	2

ITEMS	OPTIONS
Marker Configuration	
Exit	
Center Marker	OFF, ON (OFF is default)
Aspect Marker	OFF, 4:3, 14:9, 13:9, 15:9, 1.85:1, 2.35:1 (OFF is default)
Safety Marker	OFF, 95%, 93%, 90%, 88%, 85%, 80% (OFF is default)
Marker Color	Red, Green, Blue, White, Black (Red is default)
Marker Mat (background)	OFF, 1– 7 (1 is default)
Thickness	1, 2, 3, 4, 5, 6, 7 (2 is default)

■ **Marker Enable**

Turn 'ON' to display a Marker Enable on the screen.

■ **Center Marker**

Turn 'ON' to display a Center Marker on the screen.

■ **Aspect Marker**

Set the Aspect Marker on the screen. Options: OFF, 4:3, 14:9, 13:9, 15:9, 1.85:1, 2.35:1.

■ **Safety Marker**

Use this to superimpose one of 6 Safety Markers on the screen. Options: OFF, 95%, 93%, 90%, 88%, 85%, 80%.

■ **Marker Color**

Choose from 5 Marker Colors: Red, Green, Blue, White, or Black.

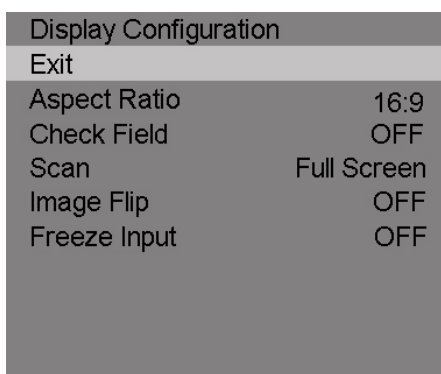
■ **Marker Mat (marker background)**

Choose the Marker Mat transparency. Options: OFF, 1-7.

■ **Thickness**

Choose the Marker Line Thickness ranging from 1 to 7.

3.4 Display Configuration Submenu



ITEMS	OPTIONS
Display Configuration	
Exit	
Aspect Ratio	16:9, 4:3 (16:9 is default)
Check Field	OFF, Mono, Red, Green, Blue (OFF is default)
Scan	Full Screen, Overscan, Underscan, Pixel-to-Pixel (Full Screen is default)
Image Flip	OFF, H, V, H/V (OFF is default)
Freeze Input	OFF, ON (OFF is default)

■ **Aspect Ratio**

Option to switch between 16:9 and 4:3 Aspect Ratio.

■ **Check Field**

Use these modes for monitor calibration or for individual color component image analysis. In Monochrome mode, color is disabled and grayscale image is shown. In Blue, Green, and Red Check Field modes, only the selected color is shown.

■ **Scan**

Use to enable the Scan mode. Options: Full screen, Overscan, Underscan, Pixel-to-Pixel.

■ **Image Flip**

Select to enable Image Flip mode. Options: OFF, H (Horizontal), V (Vertical), H/V (Horizontal and Vertical).

■ Freeze Input

Turn 'ON' to enable Freeze Input mode. A still image will remain on the screen until Freeze is turned off or power is removed from the monitor.

3.5 Function Configuration Submenu

Function Configuration	
Exit	
Peaking	OFF
Peaking Color	Red
Peaking Level	50
False Color	OFF
Exposure	ON
Exposure Level	15
Histogram	Y
DSLR SCALE	OFF

ITEMS	OPTIONS
Function Configuration	
Exit	
Peaking	OFF, ON (OFF is default)
Peaking Color	Red, Green, Blue, White, Black (Red is default)
Peaking Level	0 – 100 (50 is default) Note: This option is disabled when Peaking is set to OFF.
False Color	OFF, ON (OFF is default)
Exposure	ON, OFF (OFF is default)
Exposure Level	0 – 100 (15 is default) Note: This option is disabled when Exposure is set to OFF.
Histogram	OFF, Y, RGB, Color (Y is default)
DSLR Scale	OFF, ON (Available for HDMI input only.)

■ Peaking

Turn 'ON' to enable Peaking mode.

■ Peaking Color

When Peaking Mode is enabled, the monitor will add color to sharply defined edges and objects in an image. This is intended as a tool to aid in judging sharp camera focus. When a camera is adjusted for best focus, the object of interest will have colored edges. Choose from 5 Peaking Colors: Red, Green, Blue, White, or Black. Normally, this function is turned on only as long as needed for focus adjustment and then turned off for normal monitor operation.

■ Peaking Level

The Peaking Level ranges from 0 to 100.

■ False Color

Turn 'ON' to enable False Color mode. When this is on, the picture will have colors added based on video level. It is useful to make a quick check to see if level exceed normal black and white limits or to make a comparison between one scene or lighting situation and another.

■ **Exposure**

Turn 'ON' to enable Exposure Level mode.

■ **Exposure Level**

The Exposure Level setting ranges from 0 to 100. This function mimics the “zebra pattern” display that is often used in many camera viewfinders. It provides a quick check for proper camera exposure. When it is turned ON, diagonal lines will appear in the image areas where the brightness matches the level Exposure Level setting. This is useful when a camera angle has been changed and it is important to keep certain objects at the same brightness. On a typical video scale of 0 – 100, the Exposure number relation is shown in the table below. That is, “zebra patterns” appearing on the image indicates that the area covered by the zebra pattern matches or exceeds the selected video level.

EXPOSURE LEVEL NUMBER	APPROXIMATE VIDEO LEVEL
15	100%
40	90%
70	80%
100	70%

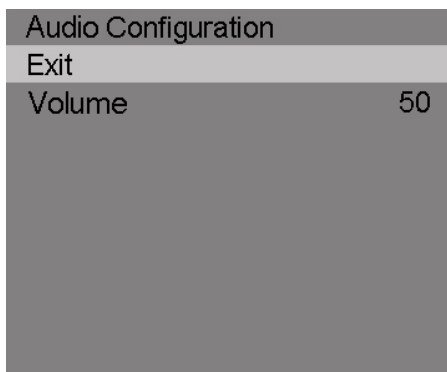
■ **Histogram**

Use to enable the Histogram mode. Options: OFF, Y (shown), RGB (with color), Color (RGB colors individually shown). The Histogram display is similar to displays used in DSLR cameras and desktop color processing applications. It provides a graphic representation of the amount of dark, mid and light tones in an image. It is useful for comparing the average “balance” between different “real” images, not test patterns.

■ **DSLR SCALE (HDMI Input Only)**

Turn 'ON' to enable DSLR Scale mode.

3.6 Audio Configuration Submenu



ITEMS	OPTIONS
Function Configuration	
Exit	
Audio	0 – 100 (50 is default)

■ **Audio**

The Audio level ranges from 0 to 100.

3.7 System Configuration Submenu

System Configuration	
Exit	
Language	English
HDMI/SDI Convert	OFF
Menu Timer	10s
Back Light	100
Reset	OFF
ISP	
Firmware Version	V 2.8

ITEMS	OPTIONS
System Configuration	
Exit	
Language	English, Chinese (English as default)
HDMI/SDI Convert	OFF, ON (OFF as default)
Menu Timer	10s, 20s, 30s (10s as default)
Back Light	0 – 100 (100 as default)
Reset	OFF, ON
ISP	
Firmware Version	V3.3

■ **Language**

Choose Language: English or Chinese.

■ **HDMI/SDI Convert**

Turn 'ON' to enable HDMI/SDI Convert mode.

■ **Menu Timer**

The menu timer level ranges from 10s, 20s, 30s.

■ **Back Light**

The Back Light level ranges from 0 to 100. Back Light adjustment is commonly used to compensate for ambient light levels in the viewing environment and is preferred over using Contrast and Brightness for this.

■ **Reset**

Turn 'ON' to enable reset mode.

■ **ISP**

ISP is for service use only.

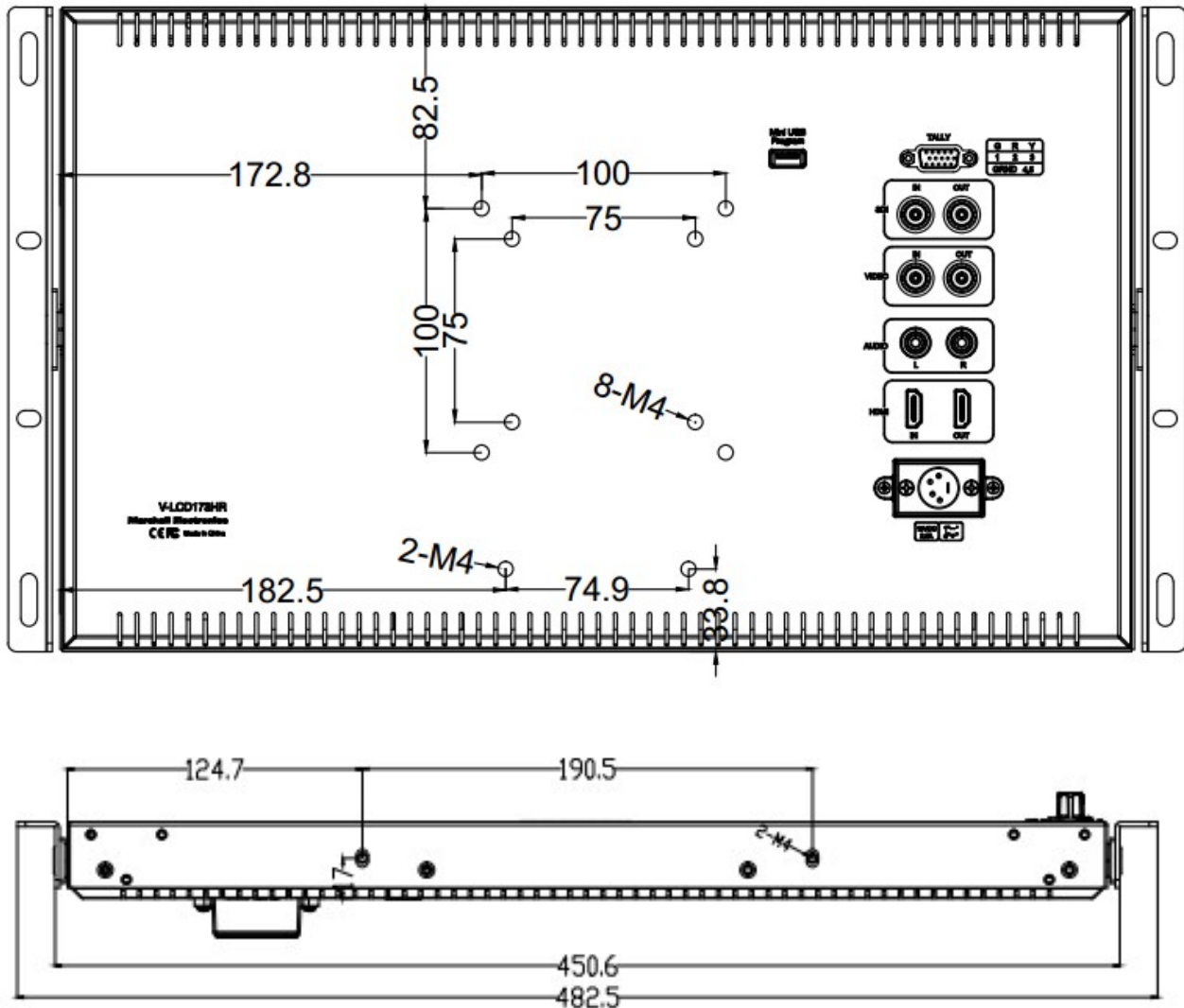
■ **Firmware Version**

Display firmware version (V3.3 at the time this manual was prepared).

4. Specifications

Model Name	V-LCD173HR
Role of Usage	17.3" LCD Monitor
Connectors	
Inputs	<ul style="list-style-type: none"> • SDI BNC x 1 with Loop Out • HDMI x 1 with Loop Out • Composite BNC x 1 with Loop Out • Audio L/R RCA x 2 Line Level • Tally HD-15 Pin compatible with GPI open collector or contact closure to ground/earth • USB 3.0 USB-A x 1 (Firmware Updates) • XLR-12V 4 pin x 1
Outputs	<ul style="list-style-type: none"> • 3.5 mm Front Panel Stereo Headphone Jack
Hardware	
	<ul style="list-style-type: none"> • Included Rack Ears x 2 (6RU height) for standard 19" rack mount • Back Panel Supports VESA 100x100mm and 75x75mm mounting systems • Optional Desktop Stand Model V-ST15 Available • Weight 7.9 lbs. (3.6 Kg) • Product Dimension: 1.29" x 17.75" x 10.5" / 3.28cm x 45cm x 26.7cm (D x L x W)
Panel Information	
	<ul style="list-style-type: none"> • Native Resolution:1920x1080 pixels • Contrast Ratio: 700:1 • Luminance: 300 nits • Display colors: 16 million colors • Viewing Angle: 178-degrees H & V
Supported Formats / Frame Rates	
Composite Input	<ul style="list-style-type: none"> • NTSC • PAL
SD-SDI Input	<ul style="list-style-type: none"> • 480i 59.94Hz • 576i 50Hz
HD-SDI	<ul style="list-style-type: none"> • 720p 25, 29.97, 30, 50, 59.94, 60 Hz • 1080i 50, 59.94, 60 Hz • 1080psf 23.98, 24.00 Hz • 1080p 23.98, 24, 25, 29.97, 30 Hz
3G-SDI Level A	<ul style="list-style-type: none"> • 1080p 50, 59.94, 60 Hz • 10800i 50, 59, 60 Hz • 1080psf 23, 24, 25, 29.97, 30 Hz • 1080p 23.98, 24, 25, 29.97, 30 Hz
SD - HDMI	<ul style="list-style-type: none"> • 480i 59.94, 60 Hz • 576i 50 Hz • 480p 59.94, 60 Hz • 576p 50Hz
HD - HDMI	<ul style="list-style-type: none"> • 720p 25, 29.97, 30, 50, 59.94, 60 Hz • 1080i 50, 59.94, 60 Hz • 1080psf 23.98, 24 Hz • 1080p 23.98, 24, 25, 29.97, 30 Hz

5. Dimensions



6. Monitor Care

Screen Cleaning

Periodically clean the screen surface using ammonia-free cleaning wipes (Marshall Part No. V-HWP-K). A clean micro-fiber cloth can also be used with only non-abrasive and ammonia-free cleaning agents. Do not use paper towels. Paper towel fibers are coarse and may scratch the surface of the polycarbonate faceplate or leave streaks on the surface. Antistatic and fingerprint resistant cleaning agents are recommended. Do not apply excessive pressure to the screen to avoid damaging the LCD.

Faceplate Dusting

Dust the unit with a soft, damp cloth or chamois. Dry or abrasive cloths may cause electrostatic charge on the surface, attracting dust particles. Neutralize static electricity effects by using the recommended cleaning and polishing practice.

7. Warranty

Marshall Electronics warrants to the first consumer that this **V-LCD173HR 17.3" LCD Monitor** will, under normal use, be free from defects in workmanship and materials, when received in its original container, for a period of one year from the purchase date. This warranty is extended to the first consumer only, and proof of purchase is necessary to honor the warranty. If there is no proof of purchase provided with a warranty claim, Marshall Electronics reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to the consumer. This warranty does not apply to the product exterior or cosmetics. Misuse, abnormal handling, alterations or modifications in design or construction void this warranty. No sales personnel of the seller or any other person is authorized to make any warranties other than those described above, or to extend the duration of any warranties on behalf of Marshall Electronics, beyond the time period described above.

Note: Due to constant effort to improve products and product features, specifications may change without prior notice.

Marshall Electronics, Inc.

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www.LCDracks.com
support@marshall-usa.com

Versatile IP Test Monitor

7 inch wide touch screen



Video Surveillance Products (Installation and management)

- This product is for CCTV system installation and management. Some problems may occur with inappropriate use.
- Please read the instructions prior to its use and keep it with the warranty certificate.

Cautions for use of this product

- If you give excessive shock to this product or drop it, LCD may be damaged. Therefore, have a special care not to break it. (The damaged LCD is not available for free A/S even in warranty.)
- Do not spray water directly and wipe this product gently with a dry towel when you clean it. Have a special care for LCD shock during cleaning.
- When using outdoors, be careful to prevent water or other foreign objects from entering this product. (It may cause fire or malfunction of the product. In this case, free A/S is not available even in warranty.)
- Do not apply power to video input connectors.
- Do not install the product in the following places: extremely low or high temperature conditions; places exposed to rain, snow, or high humidity; places containing or exposed to oil and gas; places exposed to vibration and shock; places under direct sunlight or exposed to outdoor weather conditions; places exposed to radio waves (RF) or near to power lines (for EX-SDI, HD-SDI). It may cause low performance or malfunction of the unit.
- Use exclusive adapter only for recharging the built-in batteries. Otherwise, it may cause fire or explosion. (When the red LED of the adapter is flickering during recharging, please contact where you purchased this product)
- The warranty for the built-in batteries is for 6 months from the purchase date.
- LI-Polymer Batteries (11.1v / 5,680mAh) are built in this product. Do not disassemble or short-circuit the batteries. (Free A/S is not available in this case)
- If the charger terminal is short-circuited or has the polarity in opposite way, the batteries may be damaged.
- Keep this product in the provided bag to prevent the main body and LCD from getting cracked.
- Do not put any conductive materials such as screwdrivers, coins, metal parts, etc.
- Do not place this product to where water is falling or splashing and where has water inside such as flower vases.
- Stop using this product immediately and contact where you purchased this product when any smoke or smell is produced.
- Do not disassemble this product on your own and contact where you purchase this product when it does not work properly. (You do not have free A/S for any failure caused by your own decomposition)
- When this product is left for a long time and discharged, connect to WI-FI. When WI-FI is connected, the time is set automatically.
- When Micro SD Card is bent or cracked, it may cause some problems.
- When the life of Micro SD Card comes to an end, the video storage and playback are not available.
- Reset it to factory defaults if the product is paused frequently or does not work properly.
- Press and hold the power button for about 7 seconds to shut down this product forcibly when it is paused during use or the touch pad or D-pad does not work properly. After then, please turn it on again for use.
- Press and hold the power button for about 7 seconds to shut down this product forcibly when it is paused during use or just after resetting to factory defaults. After then, please turn it on again for use

Cautions for use of the memory card

Checklist for the memory card selection

- Micro SD/SDHC/SDXC memory cards are compatible with this test monitor.
- Compatibility between memory cards and this test monitor depends on the brand and type of memory cards.
- Memory cards from the following brands are recommended for use with this test monitor.
Micro SD/SDHC/SDXC Memory Card: Sandisk, Transcend, Samsung
- The recommended capacity of Micro SD card is 4GB~64GB.
- When the frame rate is 30fps or lower in saving video, a memory card of class 6 or higher is recommended. When the frame rate is 31fps or higher, a memory card of class 10 or UHS-1 is recommended.
- Android supports the FAT32 method only. A SD memory card must be formatted prior to its use, and a separate program is required to use a memory card with 64GB or higher capacity as it is unavailable to format it in FAT32 method in the window.

Memory card type and capacity

- Please check the memory card logo on the label of the memory card.

Type	Capacity
Micro SD Card	2GB Memory Card
Micro SDHC Card	4~32GB Memory Card
Micro SDXC Card	64GB Memory Card

Memory Card Classes

- You can find a number marked in a circle on the memory card. It is called 'Class'.
- The classes of memory cards indicate the transmission speed per second and a high-class memory card is required for high quality video transmission.

Type	Capacity
Class 2	The class 2 can transmit 2MB per second and is not appropriate for video and/or voice storage.
Class 4	The class 4 can transmit 4MB per second and is not appropriate for video and/or voice storage.
Class 6	The class 6 can transmit 6MB per second and is appropriate for low- quality video and/or voice storage.
Class 10	The class 10 can transmit 10MB per second and is appropriate for high- quality video and/or voice storage.
Class UHS	The class UHS can transmit 50MB per second and is appropriate for high- quality video and/or voice storage.

Cautions for use of the memory card

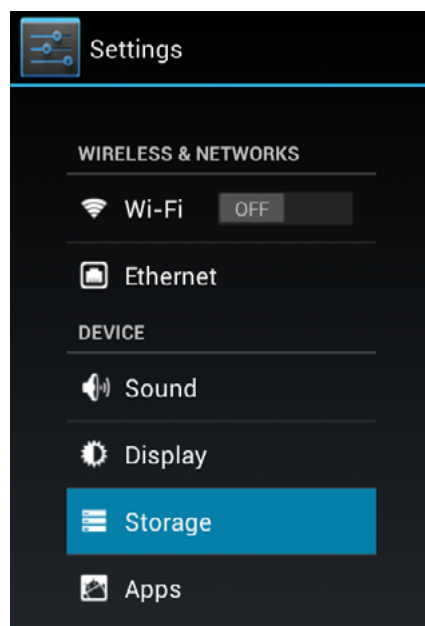
Removal of the memory card

- Errors may occur in the saved file if you remove the memory card during use.
- Please refer to the following instructions to remove the memory card.



Main Home

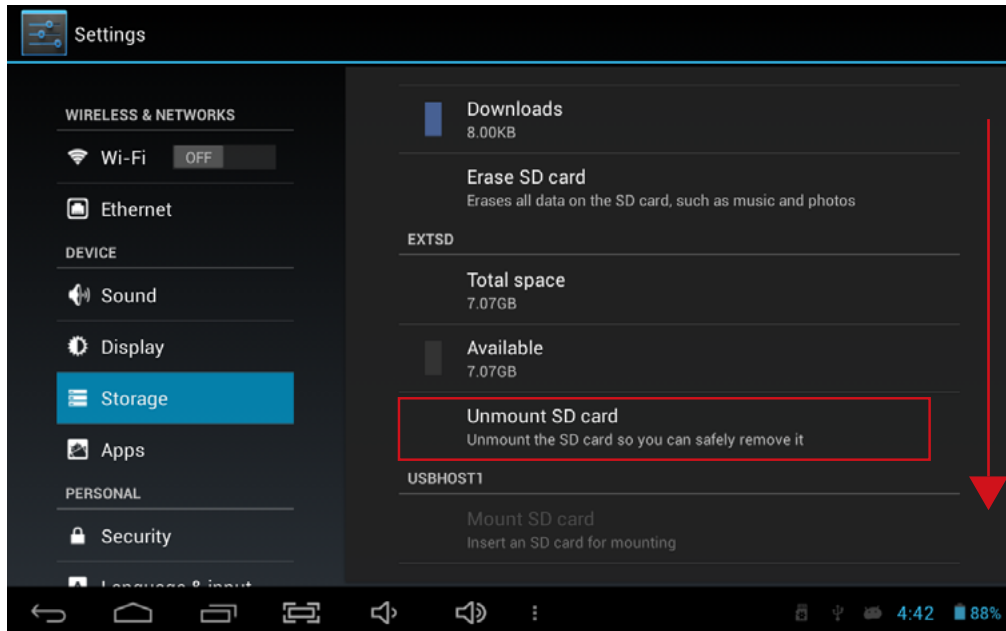
- ① Enter My Apps page from the Home screen.
- ② Select Settings.



Settings Menu

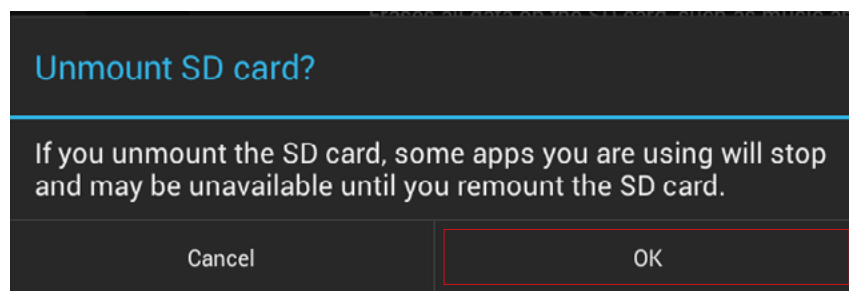
- ③ Click Storage on the Settings menu.

Cautions for use of the memory card



Storage Screen

- ④ Check if the Unmount SD card is enabled in the storage page.
 - Recheck the inserted SD card status if the Unmount SD card is disabled even though the SD card is inserted. Please remove the SD card and insert it again.



Unmount Screen

- ⑤ Select OK when a message for unmounting the SD card is shown on the screen.
 - If the SD card unmount is still enabled even after selecting OK button, please reboot this test monitor and try the steps above again.
 - For SD card insertion, no settings are required.

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NetWork

Overview

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Overview

Introduction

This IP test monitor is a multifunctional test monitor based on Android system for convenient monitoring and maintenance for video surveillance systems.

As this tester supports ONVIF, the international standard for IP security products, it is possible to connect with various network cameras easily and check their video. It can supply PoE (Power over Ethernet) to a PoE camera. The test monitor is feature-rich with a variety of functions such as network camera setting change and PTZ control. It is particularly optimized for camera installation.

In addition, you can check live video of HD/EX-SDI, Analog and HD Analog cameras, and for HD/EX-SDI, if your camera is a PoC (Power over Coaxial) camera, this test monitor can supply power to the camera over coaxial cable. RS-485 is supported for RS-485 data communication and then the camera PTZ and OSD menu control are available in a remote distance.

For HD Analog (AHD/TVI/CVI) and CVBS, the camera PTZ and OSD control are available by UTC (Up the Coaxial) function.

This test monitor has 7" IPS capacitance-type touch screen in 1280x800 resolution on the front side, D-pad(directional keys) and other function buttons on the right side for the user's convenience. Also, optical bonding is applied for visibility in outside work to provide the screen with clear image. This test monitor provides the best solution to users for video surveillance camera installation and system maintenance as it is compatible with various types of cameras (over 7,000 models of ONVIF conformant network cameras.).

Features

- 1280 x 800 High resolution IPS 7 inch TFT-LCD panel with capacitance-type touch screen
- LED Back light for clear image
- Optical bonding applied for outdoor environment
- Power supply to camera (DC12V/ 500mA) by using DC Jack
- USB Port (2.0) with 5V power out
- Micro SD card port for internal capacity expansion (Card is optional)
- Dual speaker for sound play
- Sleep mode to save the battery(automatically power off after 10 minutes in its sleep mode)
- 5,680mAH Li-polymer battery
- Exclusive charger for this test monitor (In-vehicle charger is optional)
- Portable bag with the strap for hands-free use and convenient installation
- Rubber handle cover on both sides of this tester for prevention of slipperiness
- Guard cover to protect BNC connectors
- Test monitor stand for convenient monitoring
- LED indicators for D-pad(directional keys) and other function buttons
- Miracast function for synchronization of this test monitor with an external device

Overview

IP App. functions

- **IP Camera search**
Discover the IP address of your network camera connected to this test monitor or all network cameras on your LAN by Auto Discovery function.
- **Live video checking**
Real-time video monitoring of your connected IP camera.
- **IP camera settings**
IP camera video preview and IP camera address setting change available when building IP systems.
- **Support various types of devices**
Camera video display available in various types such as ONVIF, RTSP, MJPEG, etc.
- **Auto-complete feature for camera setting information**
Easy camera settings by the auto-complete feature once the camera setting information is saved.
- **Support various transport protocols**
Support HTTP, TCP and UDP.
- **Camera configuration storage**
Save network camera configuration to the IP App. main page.
- **Monitor IP setting**
IP address change of the test monitor
- **Ping test for network status check**
Ping a network camera connected with this test monitor or on your LAN to check the network connection status.
- **PoE Voltage check**
Check the voltage of the PoE supplied from an item.
- **PoE Output**
PoE output up to 30W for the network PoE camera operation.
- **Video recording and snapshot**
Video recording and snapshot for each signal and real-time playback.
- **PTZ function**
Pan/Tilt/Zoom/Preset the connected PTZ camera.
- **Support multiple audio formats: AAC, G.711 μ -Law, G.711 A-law**
Playback of the audio for the connected camera.
- **Real-time video information checking**
Data/frame transmission rates, video/audio codec, required ports, RTP transmission quality
- **Media configuration change**
Modify or delete the set profile.
- **Camera initialization**
Reset a camera to factory defaults.
- **ONVIF properties explorer**
View a device's ONVIF properties extensively (Device, Media, PTZ, etc.)
- **Focus meter**
Show the current status of the camera focus in numerical values on the screen to adjust camera focus more easily and accurately.

Overview









Viewer App. functions

- **HD/EX/3G-SDI Input**
Support HD/EX/3G-SDI Input. Please refer to page 59 for more information on the supported resolution.
- **HD Analog, CVBS Input**
Support AHD/TVI/CVI Input. Please refer to page 59 for more information on the supported resolution.
- **HDMI Input & Output**
HDMI Input through HDMI cable and video output of this test monitor in 1080p 60Hz through HDMI output port.
- **RS-485 Communication**
Data transmission in RS-485 Tx. mode and data analysis in RS-485 Rx. mode.
- **RS-485 Analysis**
RS-485 data analysis in analysis mode
- **PTZ /OSD Settings**
Camera OSD menu setting and PTZ (Pan/Tilt/Zoom) function implementation by RS-485 communication.
- **PoC Output (Optional)**
PoC output up to 10W for the PoC camera operation.
- **Level meter (SDI / AHD / TVI / CVI / CVBS Support)**
Show the current status of the input signal in numerical values on the screen. This function is especially useful when any problem occurs in your system such as cables and it must be figured out.
- **Focus meter (SDI / AHD / TVI / CVI / CVBS Support)**
Show the current status of the camera focus in numerical values on the screen to adjust camera focus more easily and accurately.
- **CRC Error count (SDI Support)**
Built-in CRC error count function to check data loss transmitted through cables.
- **Video recording & Snapshot**
Storage capacity extension possible by mounting Micro SD card additionally. It is available to save the recorded video or captured image into Micro SD card.
- **Audio playback**
Playback of the recorded HDMI audio signal.
- **UTC (Up The Coaxial / AHD, TVI, CVI, CVBS Support)**
Camera OSD menu setting and PTZ (Pan/Tilt/Zoom) function implementation through a coaxial cable without wiring data lines by UTC function.

Overview

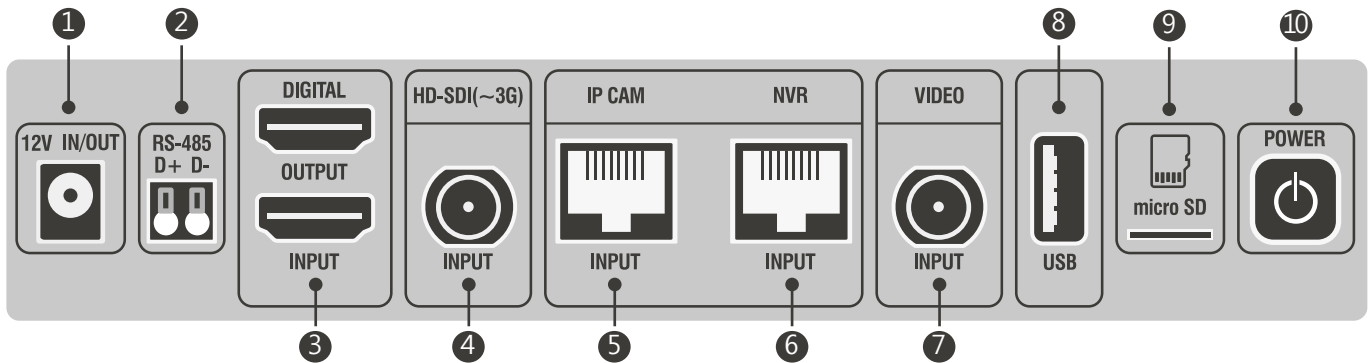
Product Components

- Please check if the following components are all included in your package when you receive this item.

Item	Name	Description
	IP Multifunctional Test Monitor	Charge the battery prior to its use. It may be discharged at the time of delivery.
	Exclusive bag with strap	Keep the test monitor in this bag for its storage or use. Otherwise, the LCD and main body may be scratched.
	Exclusive Charger	This charger is exclusive for this test monitor. If any other charger is used to recharge this device, it may generate some problems.
	Power output leads	Use this cable for DC12V power output from this test monitor through DC12V IN/OUT port.
	Coaxial Cable	Use this cable for SDI or Analog video signal input.
	Power input leads	Use this cable for DC power input.
	User's Manual	The manual is provided in a 64-page booklet and a separate quick guide is provided.
	USB LAN Card	Wi-Fi is available to use only when the USB LAN card is mounted on this test monitor.

Product Parts and Descriptions

Top Interface



No.	Name	Description
①	Power Connector	The exclusive adapter included in this package is only allowed to recharge this test monitor. DC12V power supply for camera operation is also available through this port by using the power output lead. There are 5,680 mAh Li-Polymer batteries built in this monitor.
②	RS-485 Communication	Camera PTZ and OSD menu settings are available by RS-485 communication function. In addition, data reception and analysis are possible in RS-485 Rx. and Analysis modes.
③	HDMI Input/Output	HDMI input up to 1080p 60Hz resolution is possible, which is received from external devices such as NVR or DVR. HDMI output in 1080p 60Hz resolution is also possible.
④	HD-SDI(~3G) Input	HD/EX/3G-SDI video input is available and it can supply PoC (Power over Coax) to PoC camera. (PoC is optional)
⑤	IP Camera Connector (RJ-45)	This test monitor can connect a network camera directly or via a Hub/Switch. Also, it can supply PoE to a PoE camera.
⑥	NVR Connector (RJ-45)	PoE voltage test is available through this port.
⑦	Video Input	AHD, TVI, CVI or CVBS input is available through this port and camera PTZ and OSD menu settings are also easily implemented by UTC function.
⑧	USB Terminal	This test monitor supports USB 2.0 and supplies 5V power through this USB port. Wi-Fi is available to use only when the USB LAN card is mounted on this test monitor
⑨	Micro SD Card Slot	Standard Micro SD card can be mounted onto this test monitor and recorded video can be saved on it. Also, it can be used for data transfer.
⑩	Power Switch	You can turn on/off this test monitor by pressing this power switch for around three seconds, or set it to sleep mode by pressing this button for a second. The batteries can be saved due to this sleep mode function(Automatically power off after 10 minutes in its sleep mode)

Product Parts and Descriptions

Front Interface



No.	Name	Description
①	Touch Screen	IPS 7 inch TFT LCD panel in 1280x800 high resolution with tempered glass is applied. In addition, optical bonding is applied for outdoor environment and the fingerprint can be removed easily by applying the anti-fingerprint coating to this test monitor.
②	D-Pad (Directional Keys)	These keys are for adjusting directions (Up/Down/Left/Right/SET)
③	Mode button	This button is for opening the menu in the App. In the Viewer App., it can be used to switch to PTZ or OSD mode.
④	Home button	This button is for going to the Home screen. However, in this case, the App. running just before turning to Home screen is still ongoing.
⑤	Menu button	This button is for opening the menu in the Viewer App. or IP App.
⑥	Back button	This button is for terminating an App. during operation or returning to the previous page. If you terminate the App. during PoE or PoC, the power supply will be stopped.

Product Parts and Descriptions

Bottom Navigation and Tool Bar



No.	Name	Description
①	Back button	This button is for terminating an App. during operation or returning to the previous page.
②	Home button	This button is for going to the Home screen. However, in this case, the App. running just before turning to the Home screen is still ongoing.
③	Multi window	Multi window is for showing the currently active Apps.
④	Screen Shot	Take a screen shot of the current screen.
⑤	Audio	Adjust the audio volume.
⑥	Menu button	This button is for opening the menu in Viewer App. or IP App.

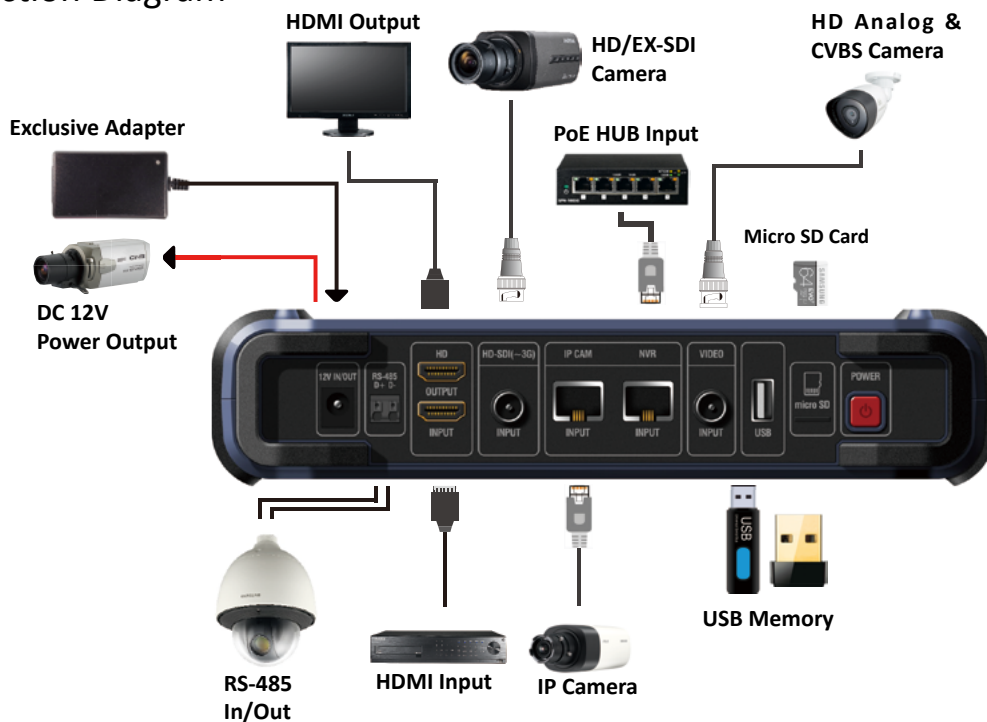
Product Parts and Descriptions

Backside Interface



No.	Name	Description
①	Monitor Stand	Test monitor stand for convenient monitoring. Adjust the angle of this test monitor.
②	Speaker	Dual speakers are mounted. Adjust volume.

Connection Diagram



Product Functions

Launcher

- The following launcher screen will be shown once this test monitor is turned on.



No.	Name	Description
①	IP Camera App.	This App. is for IP video. Tap the icon to open the IP App.
②	SDI Camera App.	This App. is for HD/EX/3G-SDI Video. Tap the icon to open the SDI Viewer App.
③	HDMI App.	This App. is for HDMI Video. Tap the icon to open the HDMI Viewer App.
④	AHD Camera App.	This App. is for AHD Video. Tap the icon to open the AHD Viewer App.
⑤	TVI Camera App.	This App. is for TVI Video. Tap the icon to open the TVI Viewer App.
⑥	CVI Camera App.	This App. is for CVI Video. Tap the icon to open the CVI Viewer App.
⑦	CVBS Camera App.	This App. is for CVBS Video. Tap the icon to open the CVBS Viewer App.
⑧	My Apps	Show all installed Apps.

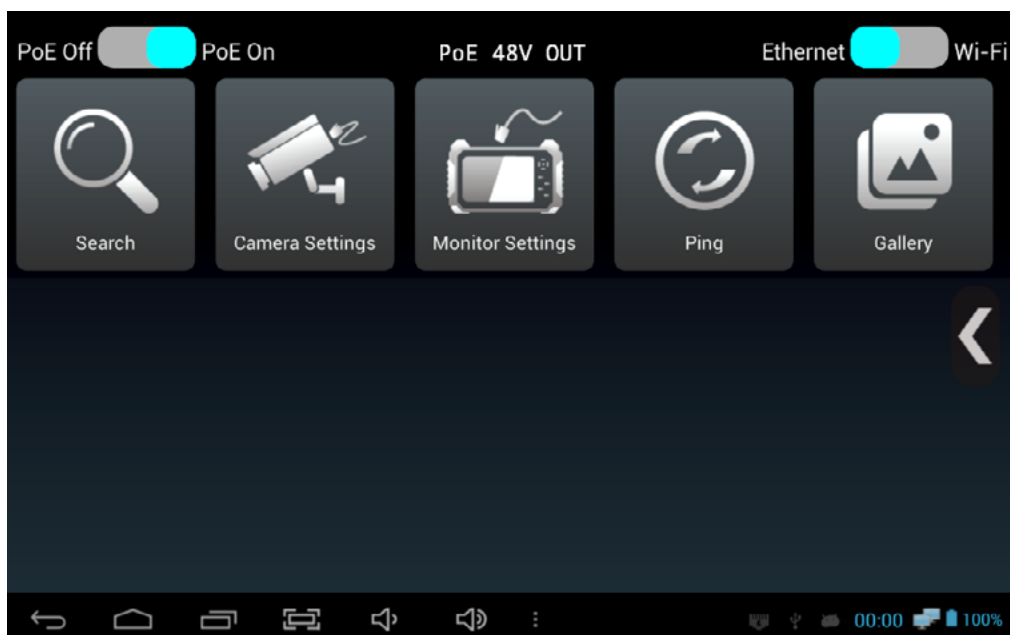
IP App. Functions

IP Camera Connection and Settings



Launcher page

- ① Select IP Camera App. to connect a network camera.



IP App. Home page

- ② The IP Camera App. has various functions such as IP search, camera settings, monitor settings, ping test, gallery, etc. If you connect an IP camera by LAN directly, please go to page 18. If you connect an IP camera by DHCP, please go to page 20.

IP App. Functions

IP Camera Connection by LAN

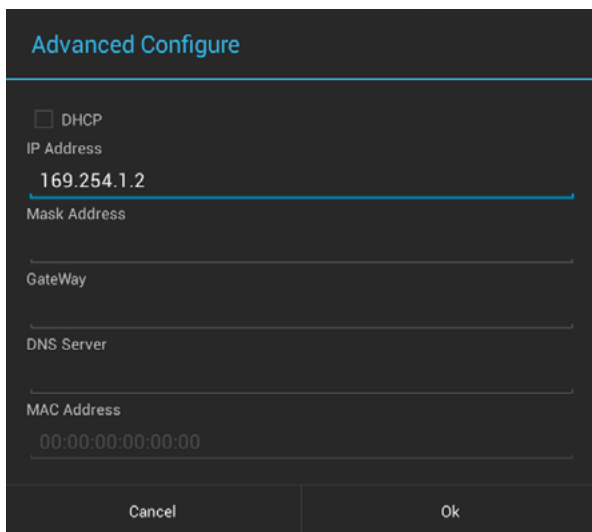
- This is for connecting an IP camera to the monitor by LAN directly without a DHCP server or a router.
- Change the monitor IP address to connect an IP camera.

1) When an IP camera is set with the DHCP or default IP address



Monitor IP Settings Page

- ① Tap the Monitor Settings icon in the IP App. main page to see the above page.
 - **'Use Ethernet' on the top of this page shall be marked all the time.**
- ② Select 'Advanced Configure' at the bottom of this page to open the monitor IP setting page.



! Cautions for IP address settings

- The cameras discovered when entering 169.254.1.2 use a link-local address. Otherwise, please search a camera after entering the same IP address range of the camera.
- If nothing is discovered with the two IP addresses mentioned above, please reset the camera to factory defaults and try it again.
- DHCP is enabled when the monitor is connected to a router or a server.

- ③ Enter 169.254.1.2 in the IP Address, do not enter anything in the Mask Address, Gateway, DNS server and press OK. Then, all of the settings will be saved.
- ④ Move to the IP App. main page by pressing the back button or tapping the back (←) icon at the bottom of the screen.

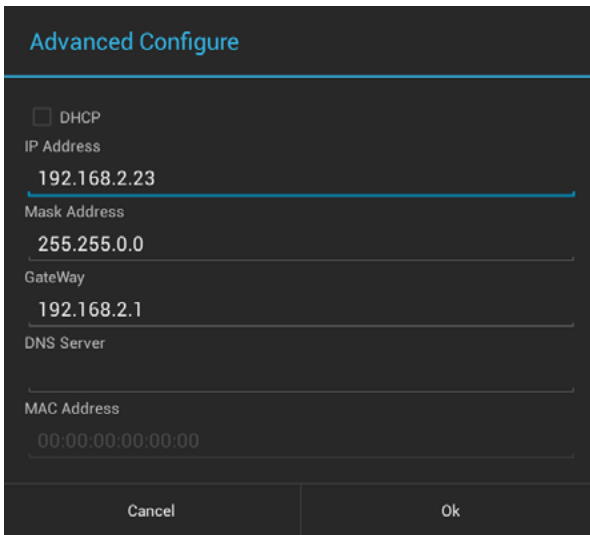
IP App. Functions

2) When connecting an IP camera manually (When you know the camera IP address)



Monitor IP Settings Page

- ① Tap the Monitor Settings icon in the IP App. main page to see the above page.
 - **'Use Ethernet' on the top of this page shall be marked all the time.**
- ② Select 'Advanced Configure' at the bottom of this page to open the monitor IP setting page.



! Cautions for IP address settings

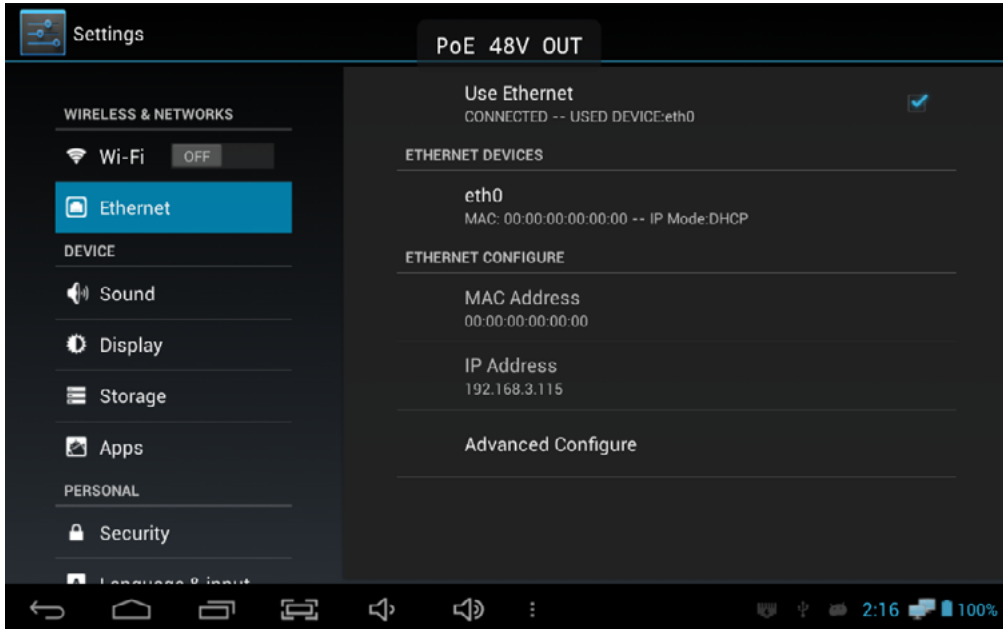
- When connecting an IP camera manually, please change the monitor IP address to the same range of the camera IP address. Otherwise, the camera will not be discovered and connected.
- If the monitor and an IP camera have different IP address ranges, the camera will not be discovered. If you do not remember the camera IP address, please reset it to factory defaults and go to page 18.
- DHCP is enabled when the monitor is connected to a router or a server.

- ③ Enter the same values in the IP Address except for the last value as the connected IP camera's IP address.
e.g.) Camera IP Address: 192.168.2.120, Monitor IP Address: 192.168.2.33
- ④ Enter 255.255.0.0 in the Mask Address, enter the same values of the IP camera address in the Gateway after changing the last value to 1, and press OK. Then, all of the settings will be saved.
e.g.) IP Address: 192.168.2.33, Gateway: 192.168.2.1
- ⑤ Move to the IP App. main page by pressing the back button or tapping the back (←) icon at the bottom of the screen.

IP App. Functions

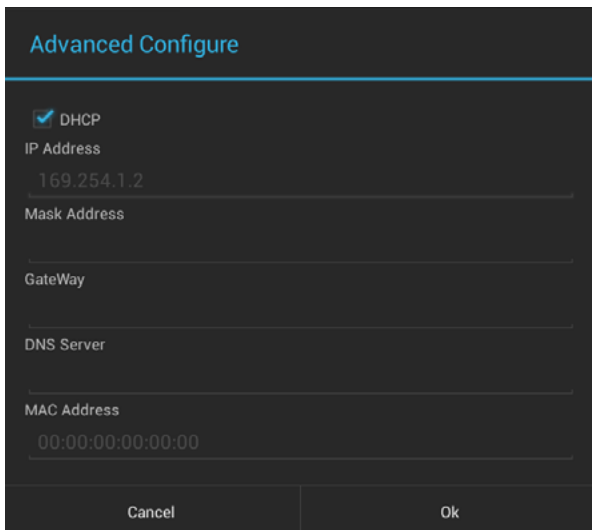
IP Camera Connection by a DHCP server

- This is for connecting an IP camera to the monitor when a DHCP server or a router is connected and it assigns an IP address to the camera and monitor automatically.



Monitor IP Settings Page

- ① Tap the Monitor Settings icon in the IP App. main page to see the above page.
 - **'Use Ethernet' on the top of this page shall be marked all the time.**
- ② Select 'Advanced Configure' at the bottom of this page to open the monitor IP setting page.



! Cautions for IP address settings

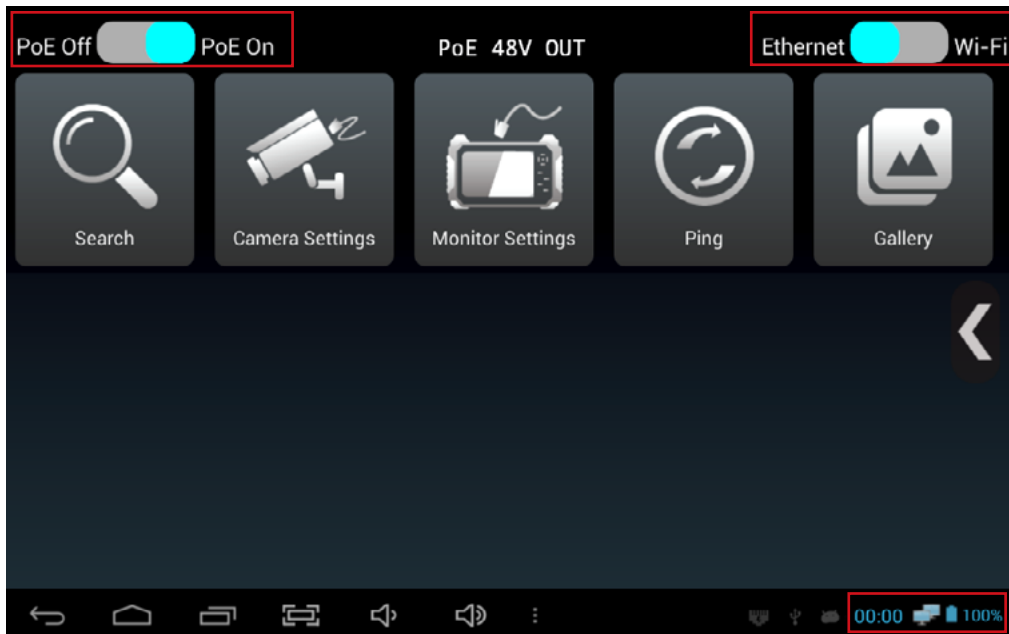
- When a DHCP server is configured, it assigns an IP address to the monitor and an IP camera.
- When the camera IP address is set manually, the camera will not be discovered and connected.
- This test monitor does not assign an IP address to a camera. A DHCP server or a router should be configured.
- Do not enter IP Address, Mask Address and Gateway.

- ③ Mark DHCP and press OK. Then, all of the settings will be saved.
- ④ Move to the IP App. main page by pressing the back button or tapping the back (↶) icon at the bottom of the screen.


IP App. Functions

Checking items prior to the camera discovery and connection



- Check the following items and move to the next step after completing the monitor settings.



IP App. Home Page (Main Page)

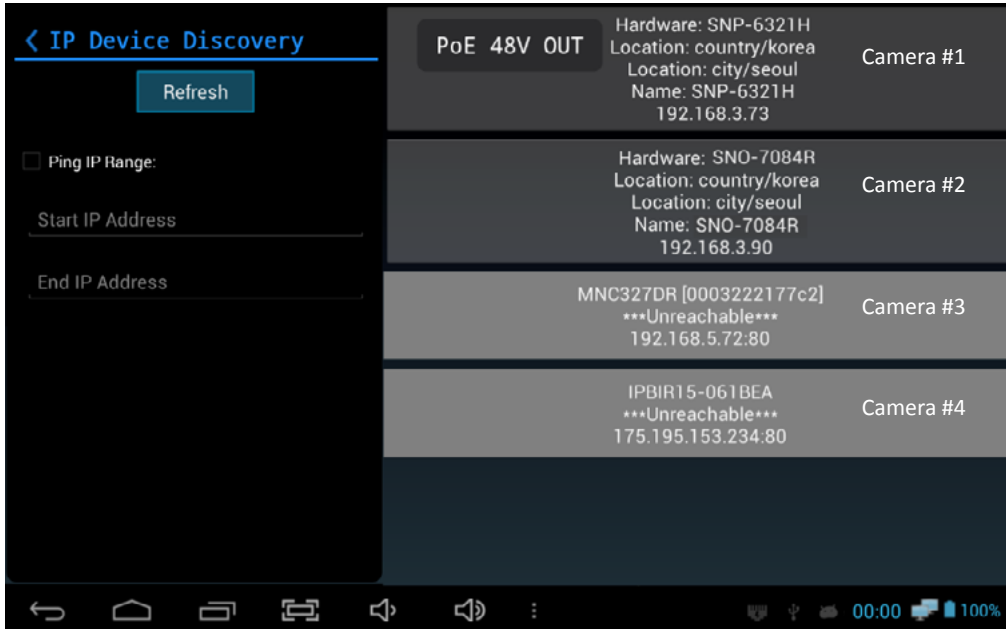
- STEP 1 :** Check the PoE status in the upper left corner. Turn on the PoE to supply PoE to your camera. If PoE is off, this monitor will not supply PoE to your camera.
- STEP 2 :** Check the Ethernet/Wi-Fi status in the upper right corner. Make sure to turn on Ethernet when connecting your camera with LAN cable and turn on Wi-Fi when connecting your camera wirelessly.
- STEP 3 :** Check the network connection status at the bottom right corner. The monitor icon  will be shown if the camera is connected after finishing monitor settings. No monitor icon means unstable network connection, so in this case, you must recheck the monitor settings and the previous steps mentioned above. If the monitor icon is still not shown even after rechecking all steps, pull out the LAN cable and connect it to this test monitor again.
- STEP 4 :** Check the LED status of the LAN port. If the network connection is normal, you will see green and orange LEDs on. If the green LED is off, the camera is still starting or there may be an error of communication. In case of using PoE, check whether or not the camera supports PoE.

Wireless connection :

The monitor settings are not required for wireless connection equipment. The connected router or server assigns IP to the camera automatically. For wireless connection, Wi-Fi icon  will be shown at the bottom right corner instead of the monitor one. .

IP App. Functions

IP Device Discovery



Search page

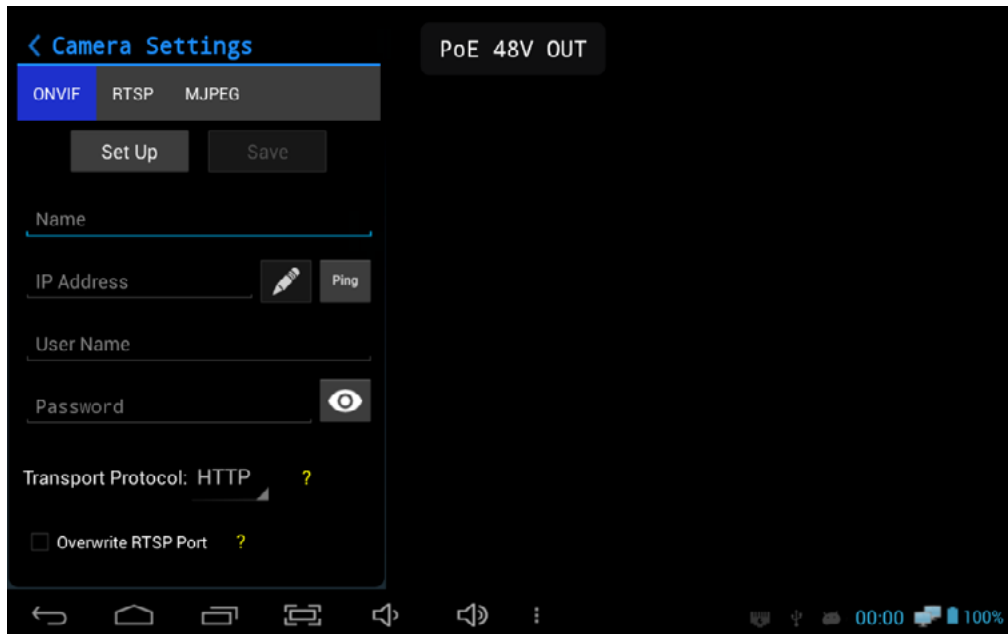
- ① Once you enter the Search from the IP App. main page, the discovered cameras will be displayed on the screen as shown in the above picture.
 - IP values depend on camera brand due to the different network settings of camera manufacturers. For example, four different addresses are shown in the above picture. When a discovered IP camera's address is in the same range of this monitor's IP, it will be shown in dark gray with the camera's hardware, location, name and IP address like #1 or #2 cameras in the above picture. However, in case of an IP camera having different range of the monitor's IP, it will be shown in light gray only with the camera's name and IP address like #3 or #4 cameras in the above picture.
 - In case of #1 and #2 cameras in the above picture, either of the cameras can be connected immediately because the current monitor IP is in the same range of these cameras' IP addresses. For #3 and #4 cameras, they will be also connected, but in this case, the monitor's IP address temporarily changes to match the IP camera's IP range.
e.g.) The IP address of #3 camera is 192.168.5.72. When this camera is selected, the monitor's IP address will temporarily be modified to the same IP range as the camera's IP, but not the exactly same address such as 192.168.5.73. The monitor's IP will be back to the original IP range once you pull out the connected IP camera from the monitor.
- ② Tap one of the discovered cameras to open the IP Camera Settings page.

! When the camera is not discovered

- Non-ONVIF conformant.
Non-ONVIF conformant cameras are not supported in discovery. These cameras can be connected manually by RTSP. RTSP address depends on camera manufacturer and can be found in the camera instructions.
- When using a wireless router.
When connecting a camera wirelessly, the network status must be changed to Wi-Fi. The router assigns IP to the camera automatically. (The method to assign IP depends on the connected router)

IP App. Functions

IP Camera Connection and Settings



Camera settings page

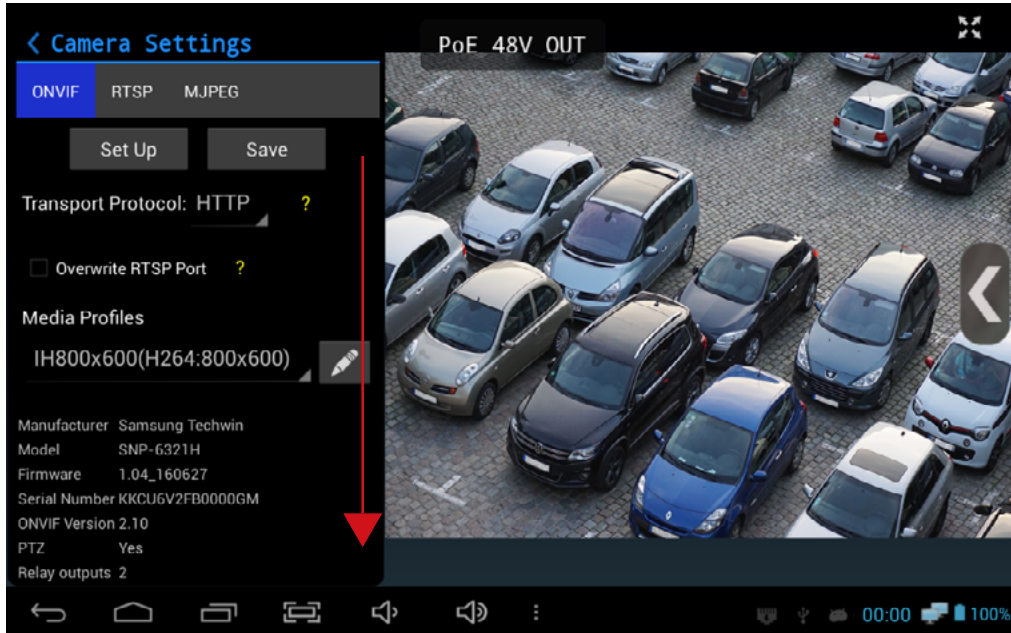
- ① Once you select the Camera Settings icon or one of discovered cameras in the Search page, the camera setting screen is displayed.
- ② Enter any word such as the camera name or installed location to identify the camera in the Name field.
- ③ Enter the camera IP address in the IP address field. If one of the discovered cameras is selected, the IP address is filled automatically.
- ④ When the camera is selected, admin is entered as the user name. If you do not know the user name, reset the camera to its default factory setting and enter the default user name. The default user name depends on the manufacturer. You can find the default information in the camera instructions.
- ⑤ Enter the password in the Password field. If you do not know the password, reset the camera to its default factory setting and enter the default password. The default password of each camera is normally specified in the camera instructions.
- ⑥ For transport protocol and RTSP port overwrite, no need to change them now. Once all values are added, tap the Set Up button to test the camera.

! When the camera connection fails


- When the IP address is uncertain.
Tap the Ping button to check the IP address after entering the IP address. Ping will fail if the address is wrong. The IP range of the monitor and camera should be same as well.
- When you cannot remember the user name and password.
When you forgot the user name and password, reset the camera to its default factory setting and enter the user name and password set by the manufacturer.

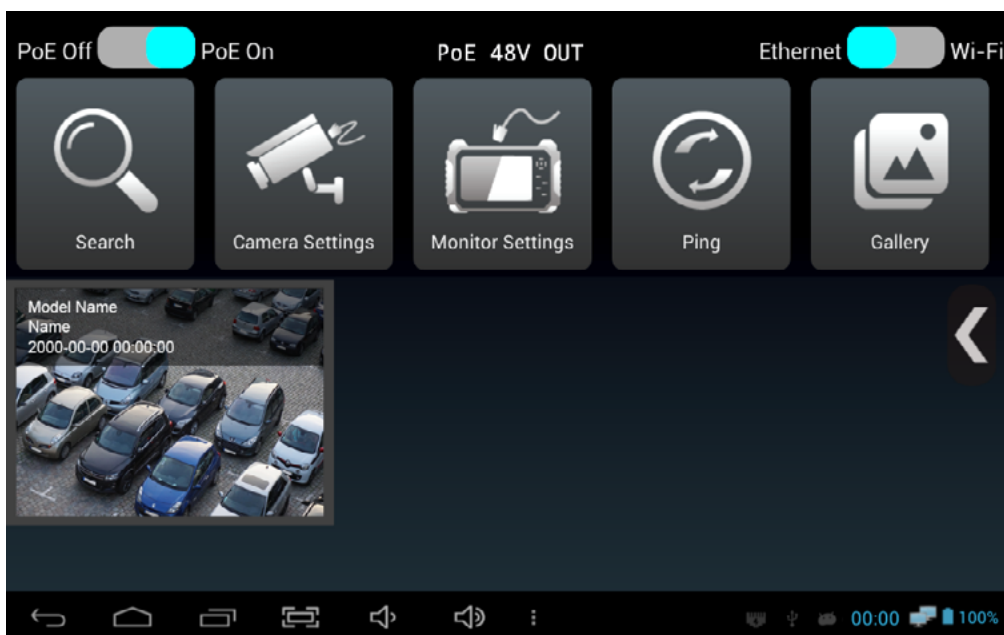
IP App. Functions

- Once the camera is connected, the preview video will be displayed as shown in the following picture.



Camera Setting Page

- 7 Scroll-down the left setup panel after the camera is connected. you can modify the profile settings.
- 8 After completing all settings, press the Save button to save the configuration to the IP App. main page for future use if you choose so.
- 9 To watch the live video of the connected camera, press the Full Screen  at the right upper corner in the preview video mode.

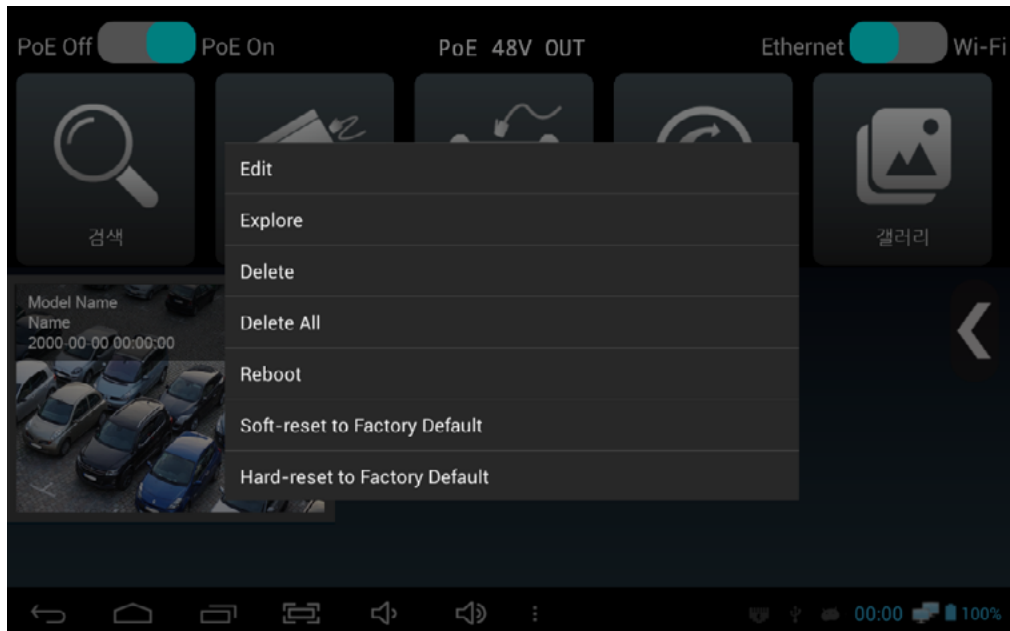


IP App. configuration

- 10 Tap the saved configuration of the camera on the IP App. main page to see the live video in full screen without the need camera search and settings.

IP App. Functions

Utilize Configuration



Configuration Menu Screen

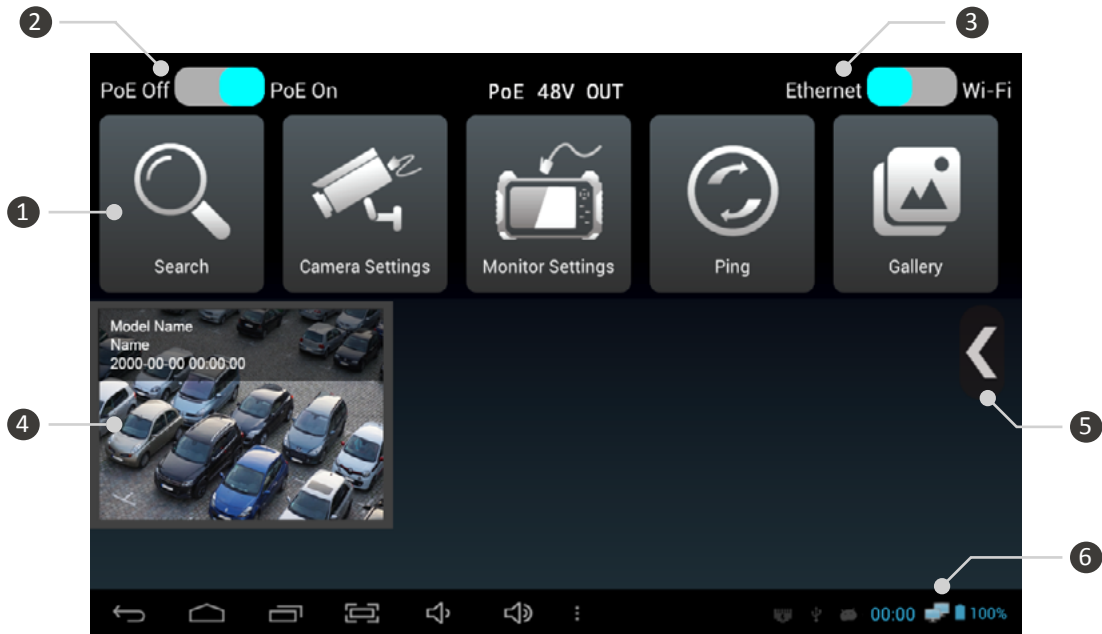
- ① In the IP App. main page, press and hold the saved configuration or press the SET key to display a context menu.
- ② Select Edit to change the configuration and select Explore to check the information of the configured camera.
- ③ If the camera supports resets, it is possible to initialize the camera settings to have the factory default values.



! How to use the configuration effectively

- **When installing the same type of cameras**
All cameras have their default IP addresses. As the saved camera configuration includes the camera IP address, ID, password, etc., you can use it for the installation of the same type of cameras. However, the same type of the camera needs to be the default mode or it must have the same IP address range.
- **How to register the IP address used frequently for your installation**
After saving the configuration of the installed camera, you can export the saved configuration and make a configuration list per installed location. During maintenance, you can import the relevant configuration and check the camera connection status without any setup process.

IP App. Functions


IP App. Main Page

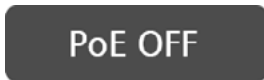


No.	Name	Description
①	Action Menu Icon	There are Search, IP camera settings, Monitor settings, Ping test, Gallery icons as shown in the above picture.
②	PoE Setting	This is for turning on/off the PoE (Power over Ethernet) function. When the PoE function is on, this monitor supplies PoE to a connected IP camera from the built-in battery and depending on the camera's specifications, the monitor's battery can run down faster. When the PoE function is off, the monitor stops supplying PoE to the camera.
③	Network Type	This is for selecting the network type of this test monitor. Turn the Wi-Fi on when connecting the camera by using a wireless router. If not, turn the Ethernet on.
④	Saved Configuration List	Once you save the configuration of your camera in the camera setting page, a device tile will be added as shown in the above picture. For any camera with the same IP address and camera information as the saved configuration, you can check the video by selecting the relevant configuration without any setup process.
⑤	Menu of IP App. Main Page	This menu includes Sort Tiles, Settings, Help, Feedback and about functions.
⑥	Network Connection Status	If the network is set to Ethernet and the network is connected, the  monitor icon is displayed. The  icon is displayed when Wi-Fi is set.
⑦	PoE Voltage Check	When the PoE function is on in the PoE setting button, PoE 48V OUT will be shown on the top of the monitor screen. When the PoE function is off, it will show PoE OFF. The PoE voltage of the power supply unit connected to the NVR port. In case of an IP camera is connected to the CAM port, the power supply unit connected to the NVR port will supply power to the camera. You can tap and drag this voltage check sign to where you would like to put it on.

IP App. Functions

Menu in the IP App. Main Page

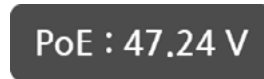
- In the IP App. main page, once you press the menu or mode key or touch menu icon , the menu bar will be shown as follows.



PoE OFF




PoE ON

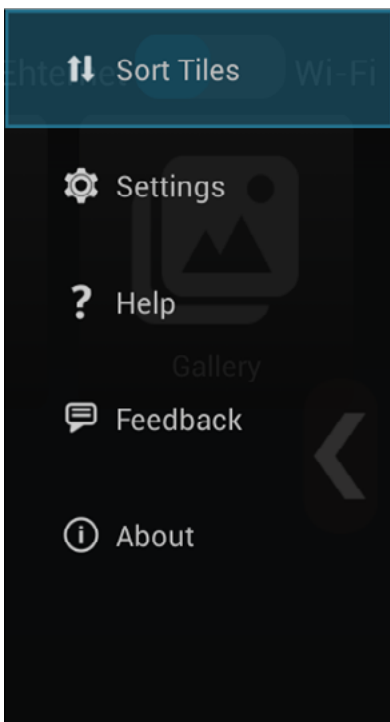


PoE Voltage Check

- ① PoE OFF
 - PoE function is OFF.
- ② PoE ON
 - When turning the PoE function on, PoE 48V OUT will be shown on the top of the screen.
 - This monitor supplies PoE from its built-in battery.
- ③ PoE Voltage Check
 - When any power supply unit is connected to the NVR port, the voltage of the PoE supplied from the device will be shown on the top of the screen.
 - Supply PoE to a device connected to the CAM port from the power supply unit connected to the NVR port.

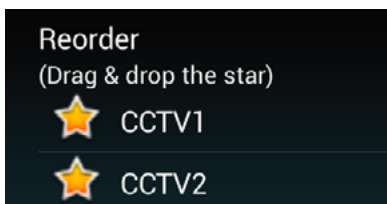
Menu in the IP App. Main Page

- In the IP App. main page, once you press the menu or mode key or touch menu icon , the menu bar will be shown as follows.



- ① Sort Tiles
 - You can rearrange the order of saved configurations.
- ② Settings
 - Import/export the device configuration.
 - Choose whether to display the time and model of the saved configuration on the device.
 - Select the location for saving recorded or captured images.
- ③ Help
 - You can find the instructions of this test monitor.
- ④ Feedback
 - You can send an e-mail when there is anything to be improved.
 - This function is available for use only when this monitor is connected to the Internet.
- ⑤ About
 - You can see the version and copyright of this test monitor.

Configuration Rearrangement



- All saved configurations will be shown.
- Drag any of the star-shaped icons to where you want.

IP App. Functions

IP Device Search

- Tap the search icon to start camera discovery as shown below.
- All IP cameras will be searched automatically when entering this screen.



No.	Name	Description
①	Refresh	Touch this button to try the search again.
②	Ping IP Range	This is a method to search IP devices by using Ping and available for use after entering the Start IP address and the End IP address. The greater the search range is, the longer it may take to search the IP devices.
③	Search Results	The discovered IP cameras are displayed with their names and IP addresses. The discovered information depends on the camera's brand.

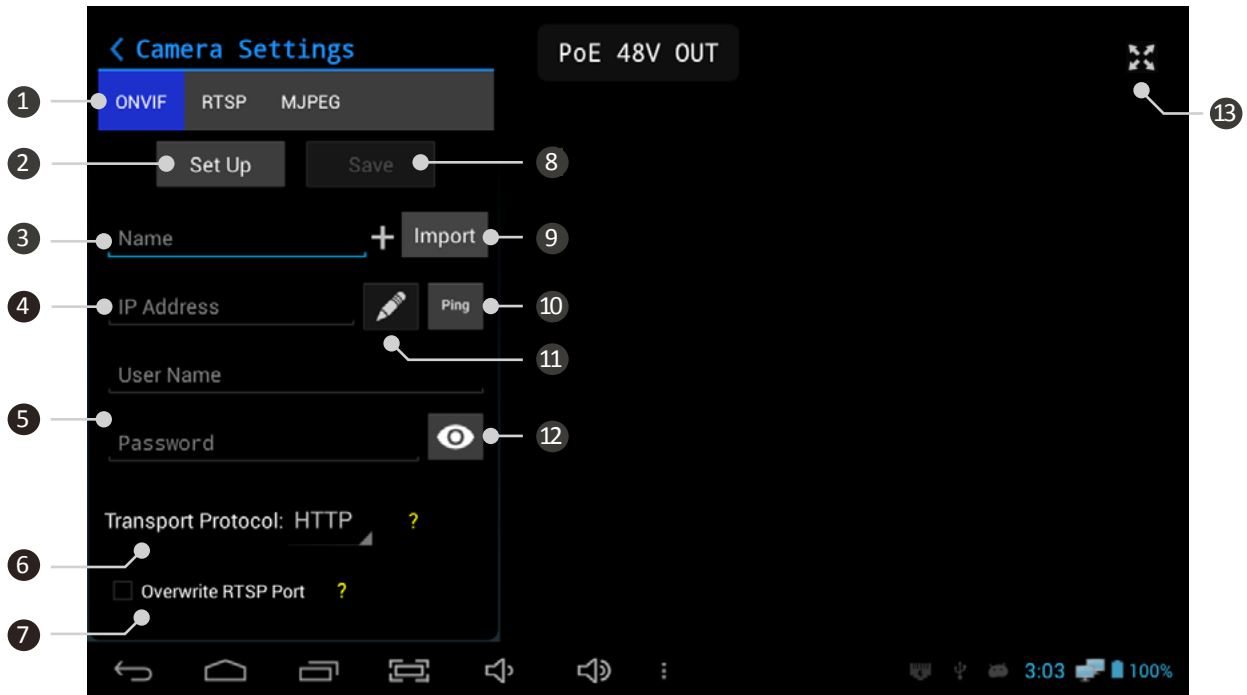
! When the camera is not searched

- **When using unsupported protocol.**
Non-ONVIF cameras may not be discovered. These cameras can be connected manually by RTSP. The RTSP address depends on the camera brand and can be found in the camera instructions.
- **When using a wireless router.**
When connecting the camera wirelessly, the network type must be changed to Wi-Fi. The router assigns IP to the camera automatically via DHCP.
- **When the IP address is changed manually.**
When changing IP address of the camera randomly, the camera may not be discovered. If you have forgot or lost the camera IP address, initialize the camera manually to its factory default.

IP App. Functions

Camera Settings


- Tap the Camera Settings icon in the IP App. main page to test an IP camera.
- Selecting one of the discovered camera in the Search page also opens Camera Settings as following.

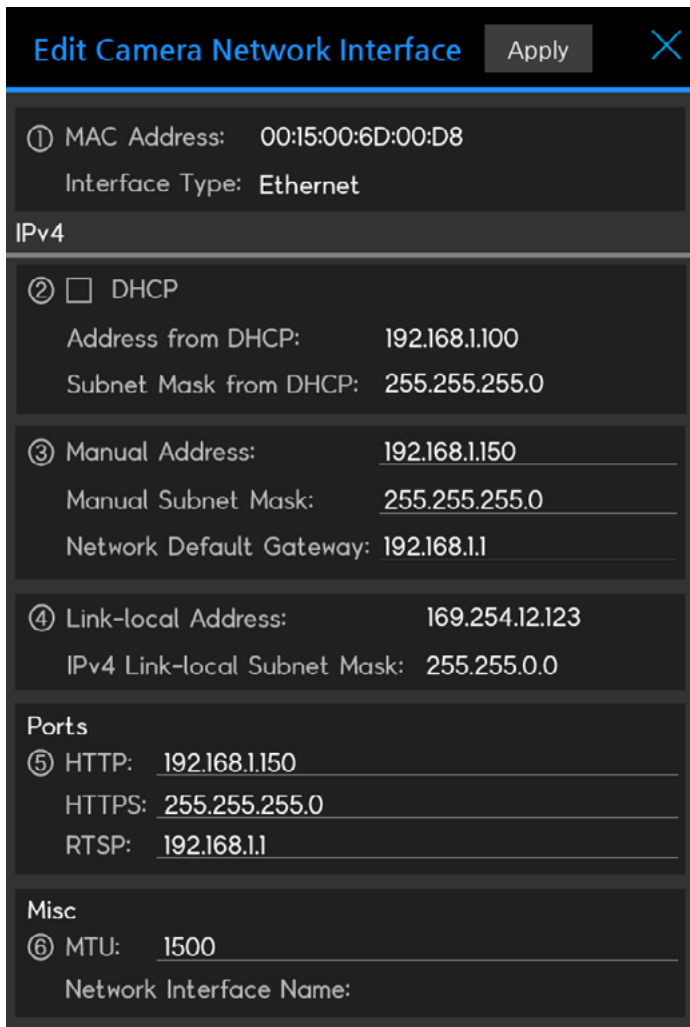


No.	Name	Description
①	Device Type	Select your device type such as ONVIF, RTSP and MJPEG.
②	Set up	Connect the camera with the setting information entered below. Press this button after completing the below setting information.
③	Camera Name	Enter a camera name as you wish.
④	Camera IP Address	Enter the IP camera address. If you are not sure about the IP address, you can check the connection status by using the Ping button on the right side.
⑤	User Name / Password	Enter the user name and password of the credential used to connect the camera.
⑥	Transport Protocol	Select a transport protocol between HTTP, TCP and UDP. HTTP is recommended. If HTTP is not supported, this test monitor finds the appropriate protocol automatically.
⑦	Overwrite RTSP Port	Specify the RTSP port value. This is not needed usually. It is useful only under certain circumstances when port forwarding is involved.
⑧	Save	Save the configuration to the main page of the IP App.
⑨	Import	Enabled only when there are saved configurations. Import one of the saved configurations.
⑩	Ping Test	Ping the connected camera and check the connection status.
⑪	Network Edit	Modify the network settings of the connected camera.
⑫	View Password	Display the entered password.
⑬	Full screen	Enabled only when the camera is connected. Check the video in full screen.

IP App. Functions

Camera Network Settings

- This function is available only when the camera is connected.
- Tap the Network Setting icon  to enter the following page.



- ① Camera Network Information
 - MAC Address is fixed for each camera.
 - Interface Type represents the current network type of the connected camera.
- ② DHCP Settings
 - Check the DHCP box to enable DHCP.
 - The automatically assigned address by a DHCP server will be shown in the below address field.
- ③ Manual IP Settings
 - You can change the camera IP address, Subnet Mask and/or Gateway.
- ④ Link-local Address
 - You can check the link-local address of the camera.
 - Link-local address is not available for modification.
- ⑤ Camera Ports
 - You can check the ports used for the camera's HTTP, HTTPS and RTSP servers.
- ⑥ Misc.
 - MTU: You can set the packet size for the transmission in network. This may be useful to accommodate some routers to achieve the best data rate.


! When the error window is displayed.

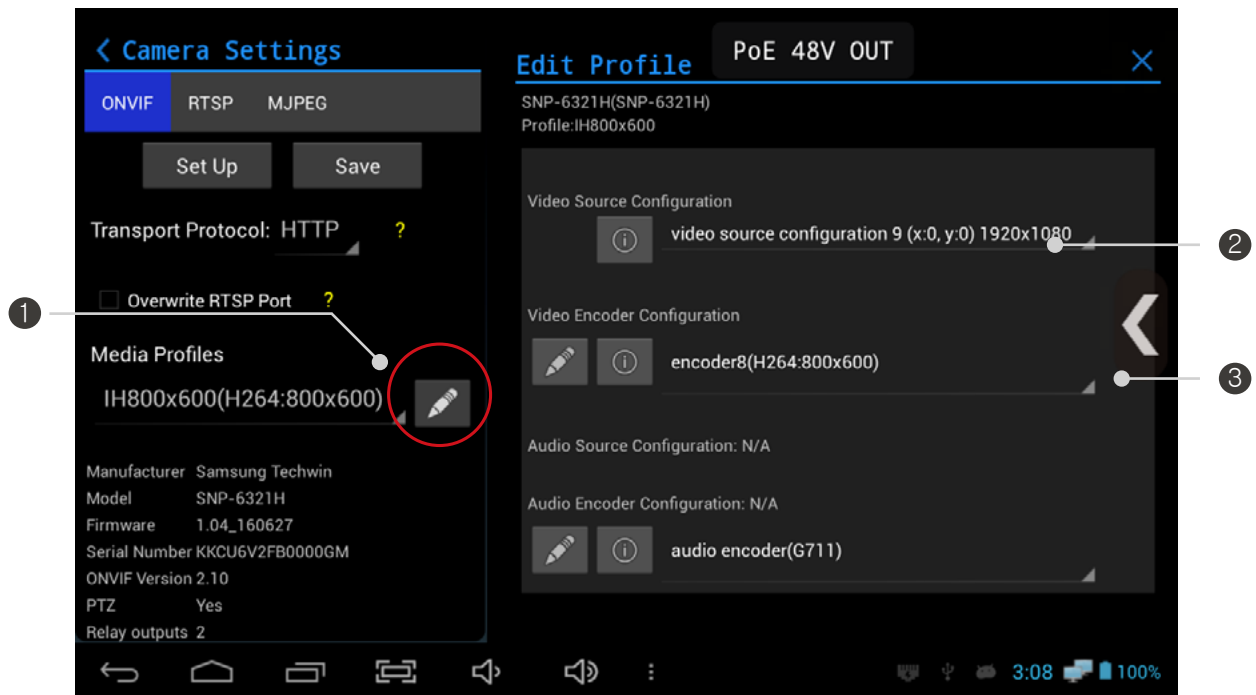
The operation depends on camera network specifications as each manufacturer has different specifications.



- When the IP address is not changed after modification.
The IP address will be changed once you reboot the camera.
- When an error window is displayed.
The IP address will be changed once you reboot the camera.

IP App. Functions

Edit Media Profile


- Once a camera is connected, you can edit the media profile.
- Tap the  profile edit icon to see the following image.

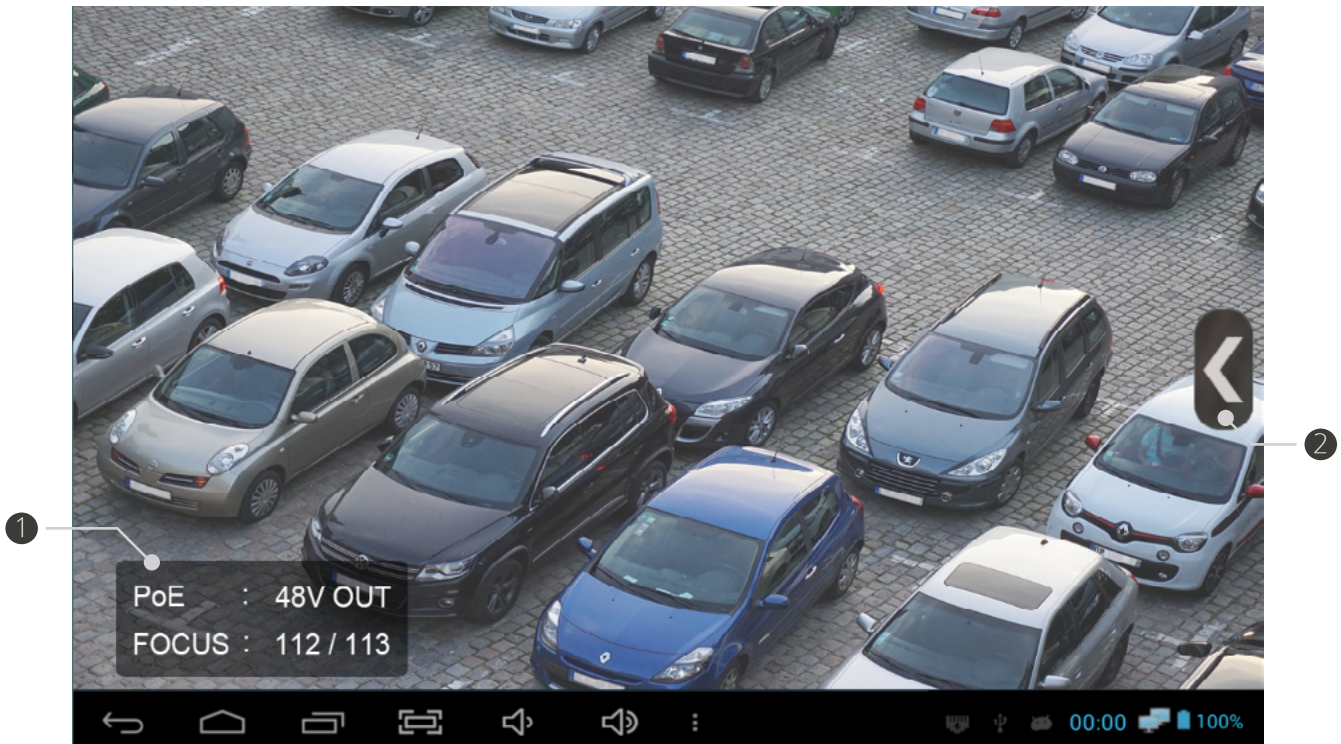


No.	Name	Description
①	Profile Edit Settings	You can set its resolution, encoding type, video quality through video encoder and also you can set bit rate, encoding type, sample rate through audio encoder.
②	View details	Tap  icon to check its source and encoder's contents in details.
③	Encoder Edit Settings	Tap the  to change its video and audio encoders' configurations. In case of not supporting audio, it will be indicated as N/A.

IP App. Functions

Main page


- If tapping the  at the top right of the screen after a camera is connected, the window will be shown as the following image.

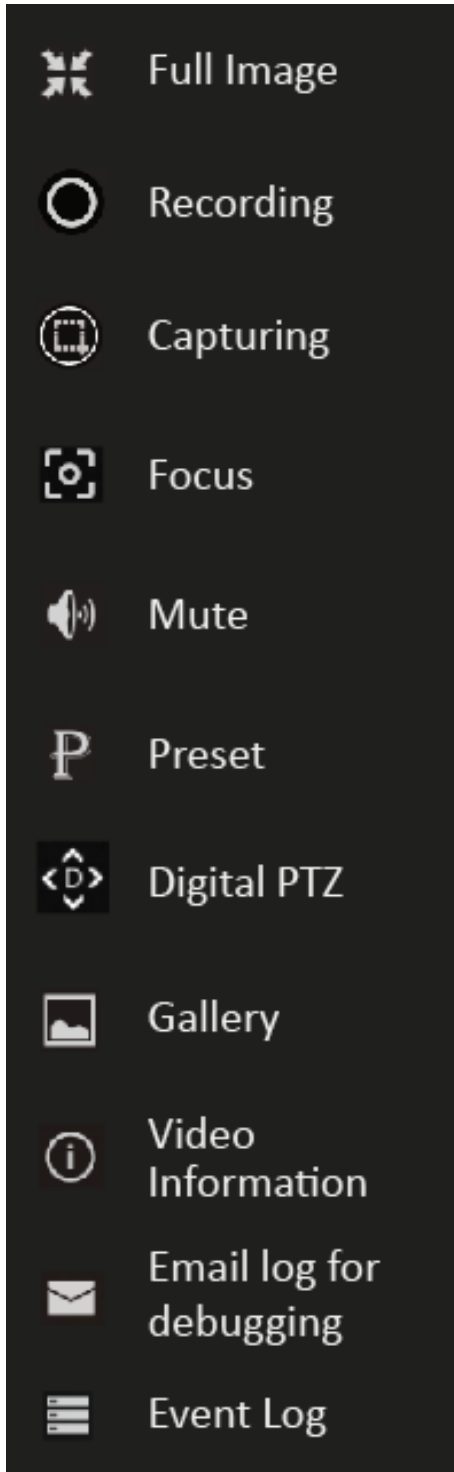


No.	Name	Description
①	Focus Meter Function	The PoE voltage status sign on the top will move to the left bottom in video full screen mode. The focus meter function is to adjust a camera's focus more easily and accurately by indicating the optimum and current focus status in numerical values in real time. The focus value is between 255 and 0. Please refer to the page 47 for more information.
②	Video Menu Bar	This menu includes aspect ratio settings (Full/Original images), recording, capturing, mute, presets, digital PTZ settings, gallery(playback), video information and e-mail log for debugging, etc.

IP App. Functions

Live video menu bar

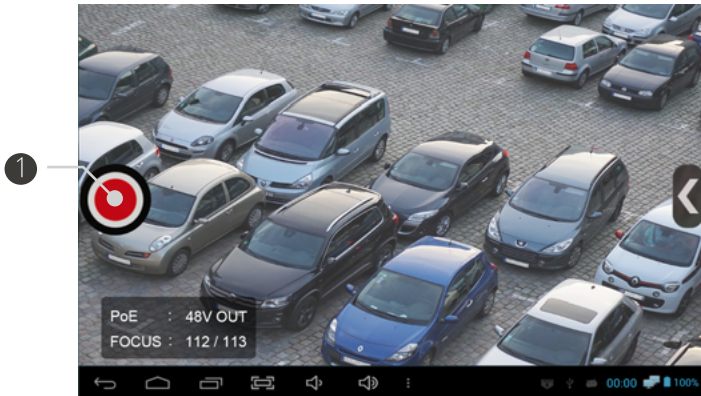
- In the IP App. video page, you tap the menu or mode key or touch the  menu icon to show the following menu bar.




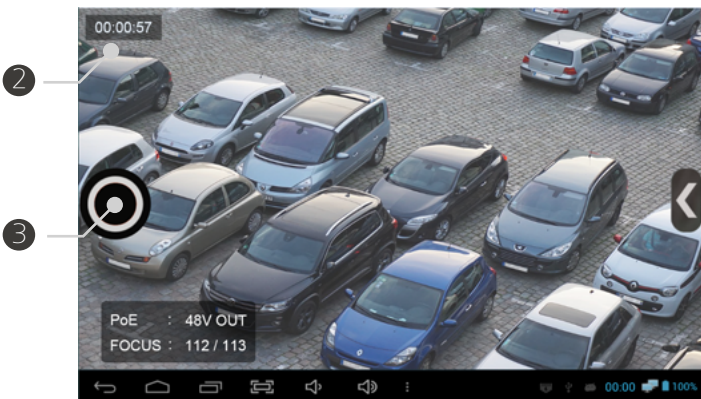
- ① Full Image / Full Screen**
 - In the full image mode, the full video is displayed. This may result in empty spaces that are not occupied by the video.
 - In the full screen mode, the video is scaled to fill the monitor screen completely while maintaining its aspect ratio. This may result in cropping the video.
- ② Recording**
 - It is for recording the input video.
 - The video recording is available up to 5 minutes.
 - Make sure to check the cautions for recording
- ③ Capturing**
 - It is available to capture the input video.
 - Make sure to check the cautions for capturing
- ④ Focus**
 - It is available to adjust the Hanwha Techwin's zoom lens camera focus
 - It is not available to adjust the conventional lens camera focus.
- ⑤ Mute**
 - Mute mode is available for audio (G.711).
 - The audio depends on the RTSP stream's support.
- ⑥ Presets**
 - This function is enabled only for cameras supporting presets.
 - Preset saved in the camera is available for use.
- ⑦ Digital PTZ**
 - This function is enabled only for Digital PTZ cameras.
 - Digital Zoom function is available for use.
- ⑧ Gallery**
 - Recorded or captured images are stored here.
- ⑨ Video Information**
 - You can check the information of the input video in real time.
- ⑩ Email log for debugging**
 - You can send the errors generated during the product operation by e-mail.
 - This function is available only during Wi-Fi.
- ⑪ Event Log**
 - You can check the camera connection log.

IP App. Functions

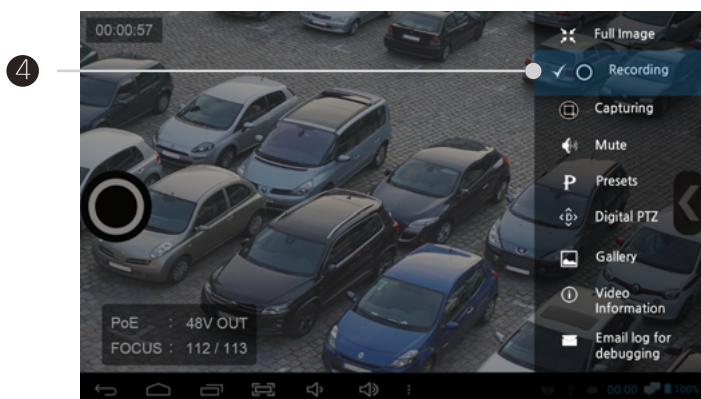
Video Recording




- ① Recording Start Button
 - Start recording by tapping  button.



- ② Recording Status Display
 - The recording time is displayed.
 - The recording is available up to 5 minutes.



- ③ Recording End Button
 - End recording and save the recorded file by tapping  button.

- ④ Recording Function Termination
 - Select the Recording in the menu bar. Then, the "V" mark will be removed and the recording function will be terminated.
 - You can also terminate the recording function by pressing the Back key.

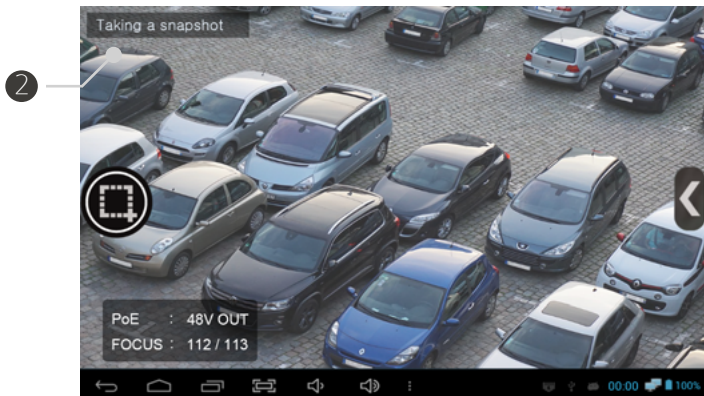
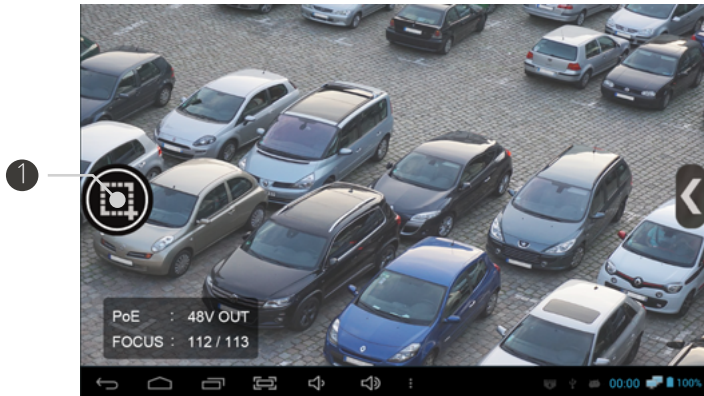
! Cautions for recording


- Recording specifications depend on each camera manufacturer.
- Change the media file saving location from Internal to SD Card, which is in the Settings of the menu bar in the IP App. main page. Then, the recorded video will be saved in the SD card.
- The recorded video is saved in MP4 format.
- The maximum recording time is 5 minutes.
- Check the storage space prior to continuous recording.

- If you take the SD card out or turn off the test monitor during recording, the recorded video file will not be saved.
- If you run dual window or terminate the App. during recording, the recorded file will not be saved.
- If you terminate the recording during recording preparation, the file will not be saved.

IP App. Functions

Snapshot Capturing



- ① Capturing Start Button
 - Start capturing by tapping  button.
- ② Capturing Status Display
 - Display the capturing status.
- ③ Capturing Function Termination
 - Select the Capturing in the menu bar. Then, the “v” mark will be removed and the capturing function will be terminated.
 - Press the BACK key to terminate the capturing function.

! Cautions for capturing

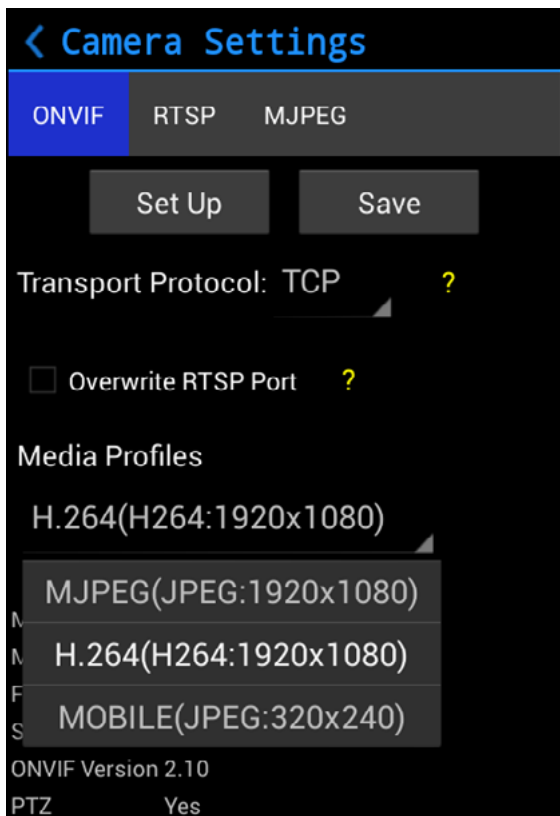
- Capturing specifications depend on each camera manufacturer.
- Change the media file saving location from Internal to SD Card, which is in the Settings of the menu bar in the IP App. main page. Then, the captured image will be saved in the SD card.
- The captured image is saved in JPG format.
- If you tap the capture button continuously, the image may not be saved.

IP App. Functions

Audio Input

- This monitor supports AAC (Advanced Audio Coding), G.711 μ -Law, G.711 A-law codecs.
- If the camera supports audio, the sound will come out through the monitor's speaker. Please note that a profile may not include audio even when the camera supports audio.
- You can control the speaker output by using the mute function.

Video Output Codec Change



- This test monitor supports H.264 and JPEG codecs.
- You can select the video codec by choosing a Media Profile of the IP camera setting page accordingly.
- When saving the configuration or turning to full screen after selecting a profile, the new profile will be applied.

! Cautions for changing codecs

- Codec specifications depend on each camera manufacturer.
- H.265 is not supported by ONVIF currently.
- MPEG4 is not supported.
- JPEG over 3Mega is not supported, but supported only for certain models.
- Multicast method is not supported.

IP App. Functions

■ Pan/Tilt Functions



- Opto-mechanical pan/tilt functions are available for PTZ cameras only
- Pan/tilt the camera by touching the screen and wiping it.
- Pan/tilt functions are available by both touching the screen and using the arrow keys.
- The pan/tilt speed depends on each camera brand when operating by the arrow keys.



- Swipe left from right
- Press the right arrow key



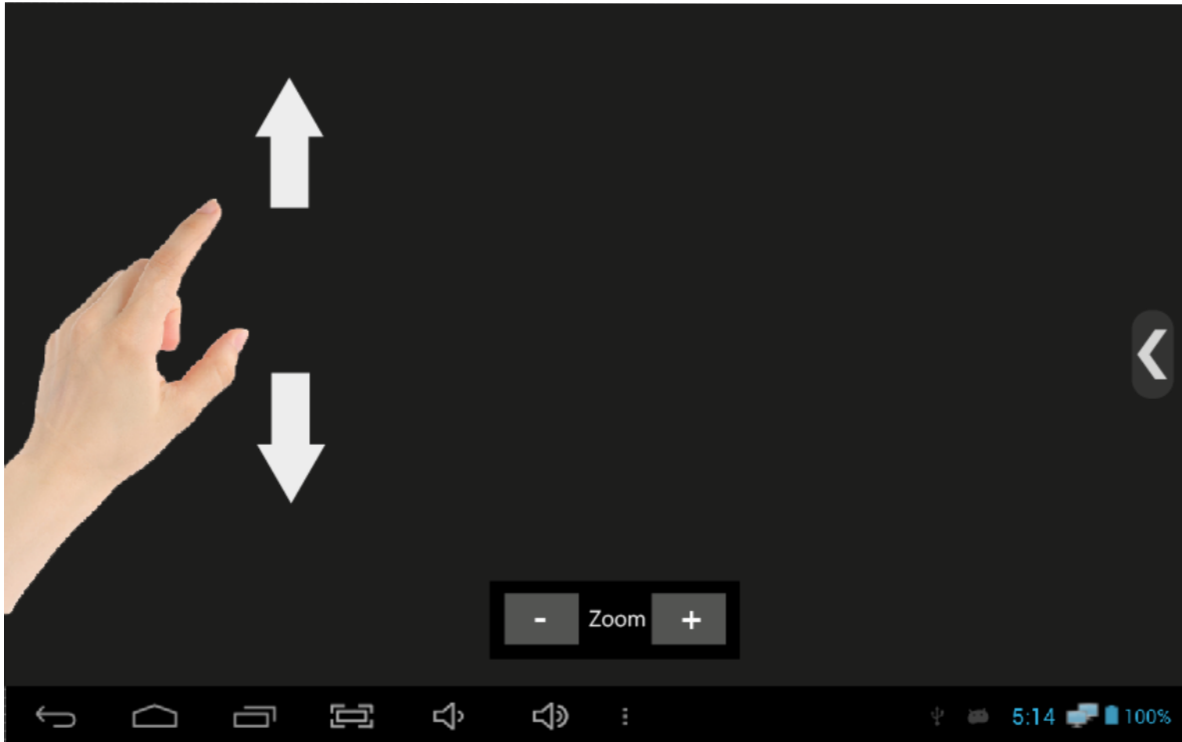
- Swipe up from down
- Press the down arrow key



- Swipe diagonally
- Unavailable to operate it by arrow keys.

IP App. Functions

Zoom Function

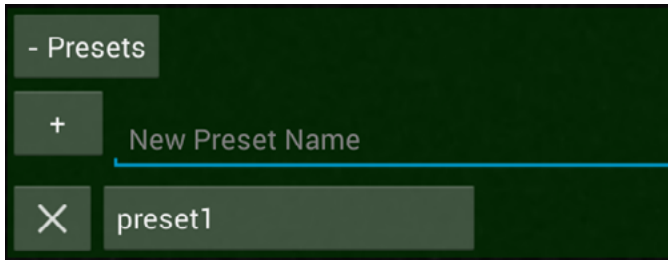


- If the camera supports opto-mechanical PTZ, enable the Digital PTZ first to use Digital Zoom function. Otherwise, opto-mechanical Zoom will be applied.
- Zoom out/in the video screen by your fingers.
- Pinch two or more fingers together to zoom out.
- Stretch two or more fingers apart to zoom in.
- Zoom out/in available by pressing -/+ of the zoom bar at the bottom of the screen.

IP App. Functions

Presets

- This function is enabled only for cameras supporting presets.
- Some characters may not be allowed in preset names by some camera brands.



- Presets function shows a list of defined presets.
- Type the Preset Name and press the + button to add a preset.
- Select a preset from the list to move the camera to the preset position.

Video Information

- Select the Video Information from the video menu bar. It will be shown as follows.

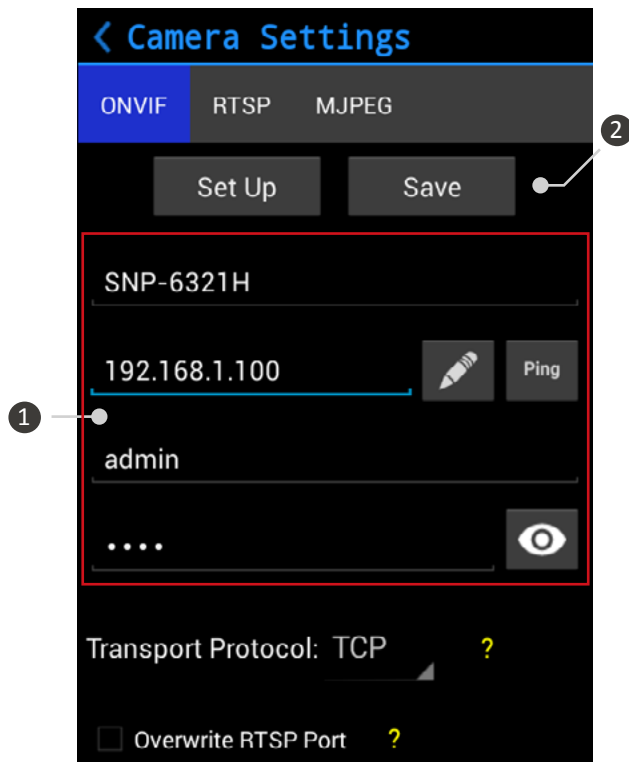


- | | |
|------------------------------------|--------------------------------|
| ① Network Video Transmitter | ⑩ RTP packets lost (Real-time) |
| ② NVT type | ⑪ Frame rate (Real-time) |
| ③ Camera model | ⑫ Audio codec (If available) |
| ④ Media profile | ⑬ ONVIF port |
| ⑤ Video resolution | ⑭ RTSP port |
| ⑥ Video encoding | ⑮ Data rate (Real-time) |
| ⑦ Transport protocol | |
| ⑧ H.264 profile level | |
| ⑨ RTP packets received (Real-time) | |

IP App. Functions

Configuration Storage

- You can save the configuration after entering all camera information required and previewing the video.
- Once you save the configuration, you can easily start its corresponding video from the IP App. main page.
- All camera settings are saved. When changing the camera settings, please save the configuration again.

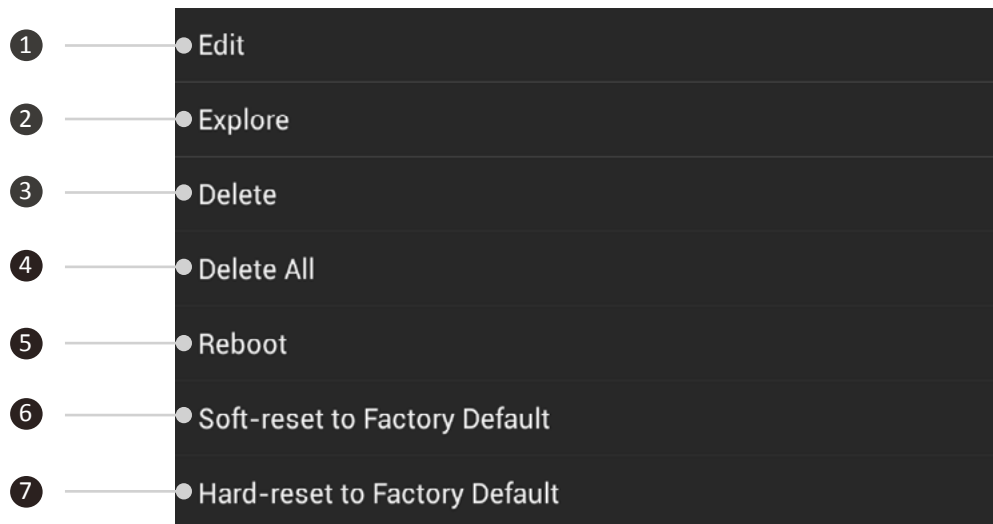


- ① Stored Information
 - All setting information to set a camera such as Name, IP Address, ID and Password is saved.
 - Configuration saving is available only when any camera has been connected successfully.
 - The camera model name is not displayed in RTSP, MJPEG configuration.
- ② Save
 - Tap the Save button in the Camera Setting page to save the configuration to the IP App. main page.

IP App. Functions

Camera Configuration Context Menu

- Press and hold a saved configuration or Set key. A menu will be shown as the following picture.
- Some functions are not available for RTSP, MJPEG configurations, which are not ONVIF.



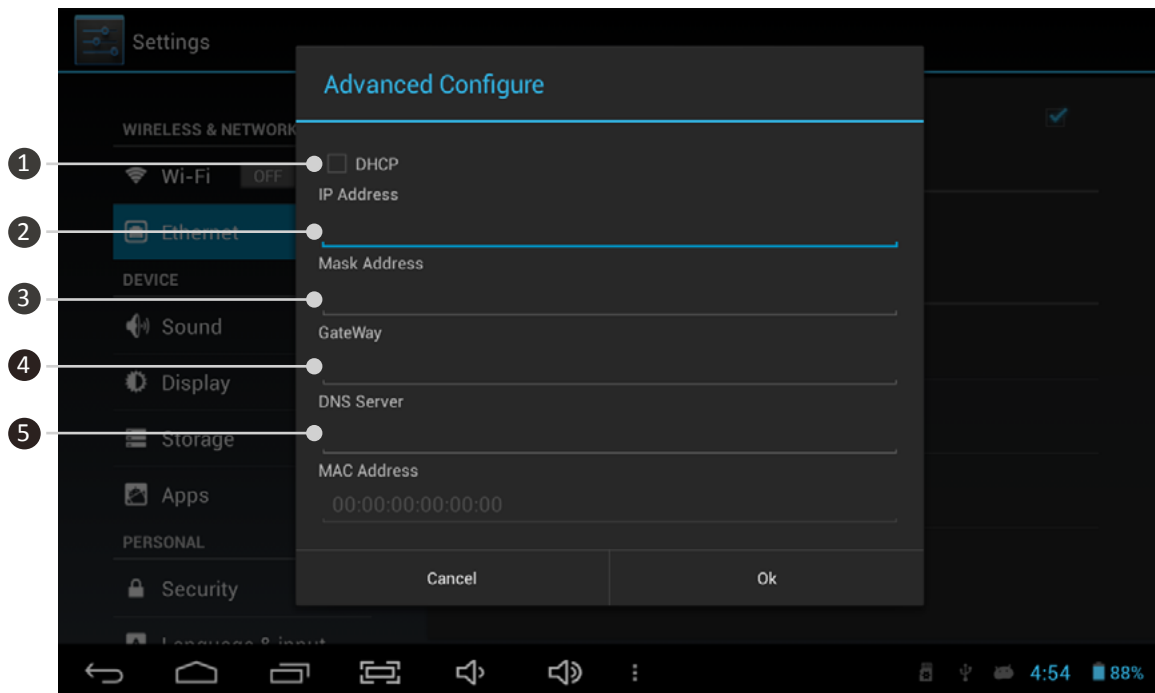
No.	Name	Description
①	Edit	Open the IP Camera Settings page to modify the configuration.
②	Explore	Check extensive ONVIF properties of the camera.
③	Delete	Delete the selected configuration.
④	Delete All	Delete all saved configurations.
⑤	Reboot	Reboot the selected camera.
⑥	Soft-reset to Factory Default	Reset the camera settings except for the network setting to the factory default.
⑦	Hard-reset to Factory Default	Reset the camera settings to the factory default.

- If the camera connection of the saved configuration is unstable or disconnected, Edit, Delete and Delete All will be enabled only.

IP App. Functions

Monitor IP Settings

- Tap the Monitor Settings icon in the main page of the IP App. to open the Monitor Network Settings page.
- Tap Advanced Configure at the bottom of the screen to display the following image.



No.	Name	Description
①	DHCP Setting	If you check DHCP, a DHCP server can assign IP to this test monitor. It does not mean that the test monitor becomes a DHCP server.
②	IP Address	Enter the IP address. This test monitor normally uses 169.254.1.2 or 192.168.0.10. To connect an IP camera, please enter the same range of the camera IP address. For more information, please check page 43.
③	Mask Address	Enter the Subnet Mask address. For this test monitor, 255.255.0.0 is the most recommended.
④	Gateway	Enter the Gateway address. It has to be modified, depending on the entered IP address.
⑤	DNS Server	It is not related to any monitor's functions.

IP App. Functions

IP Address Selection

- IP address classes shall match each other.
- The range of the numbers available for IP address is from 0 to 255. All IP address classes can be identified with the bit of the first number. With other classes, it cannot communicate with each other.
 - Class A: 1.0.0.1 ~ 127.255.255.254
 - Class B: 128.0.0.1 ~ 191.255.255.254
 - Class C: 192.0.0.1 ~ 223.255.255.254
 - Class D: 224.0.0.0 ~ 239.255.255.255
 - Class E: 240.0.0.0 ~ 254.255.255.254

Class	No. of available addresses	Subnet Mask	Private IP
Class A	16,777,216	255.0.0.0	10.0.0.0 ~ 10.255.255.255
Class B	1,048,576	255.255.0.0	172.16.0.0 ~ 172.32.255.255
Class C	65,536	255.255.255.0	192.168.0.0 ~ 192.168.255.255
Class D	Not available. Normally for multitasking.		
Class E	Not available. Normally for testing.		

- Private IP address in the above table is available for communication on the same network, but cannot pass through the router. It is used for LAN only.
- Specific IP addresses such as Class D/E are not available for use. These IP addresses are normally used for specific purposes such as multicasting or broadcasting. If you use this kind of IP addresses in general, it may cause some problem in network.
- Network specifications depend on each camera manufacturer. Class C is used in common and for large/medium-sized network, Class B is generally used.
- If you connect an IP camera with an IP address except for private IP addresses, it may be disclosed on the Internet and be in danger of being hacked.

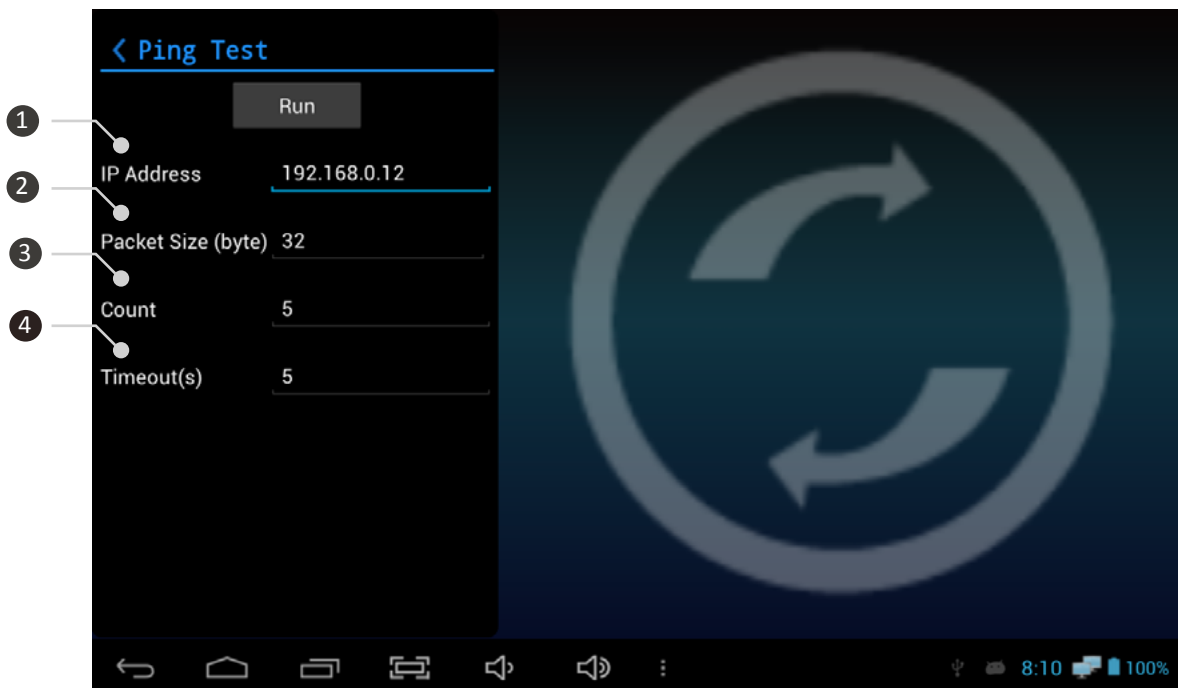
Link-local Address

- All devices supporting zero-configuration have one or more link-local addresses.
- The range of the link-local address is from 169.254.0.0 to 169.254.255.254
- All network cameras supporting zero-configuration can be discovered and connected with this test monitor, but their regular private IPs (e.g. 192.168.x.x) take precedence.

IP App. Functions

Ping Test

- You can check the connection status of the camera by Ping test.
- For Ping test, the camera's IP address is used only.

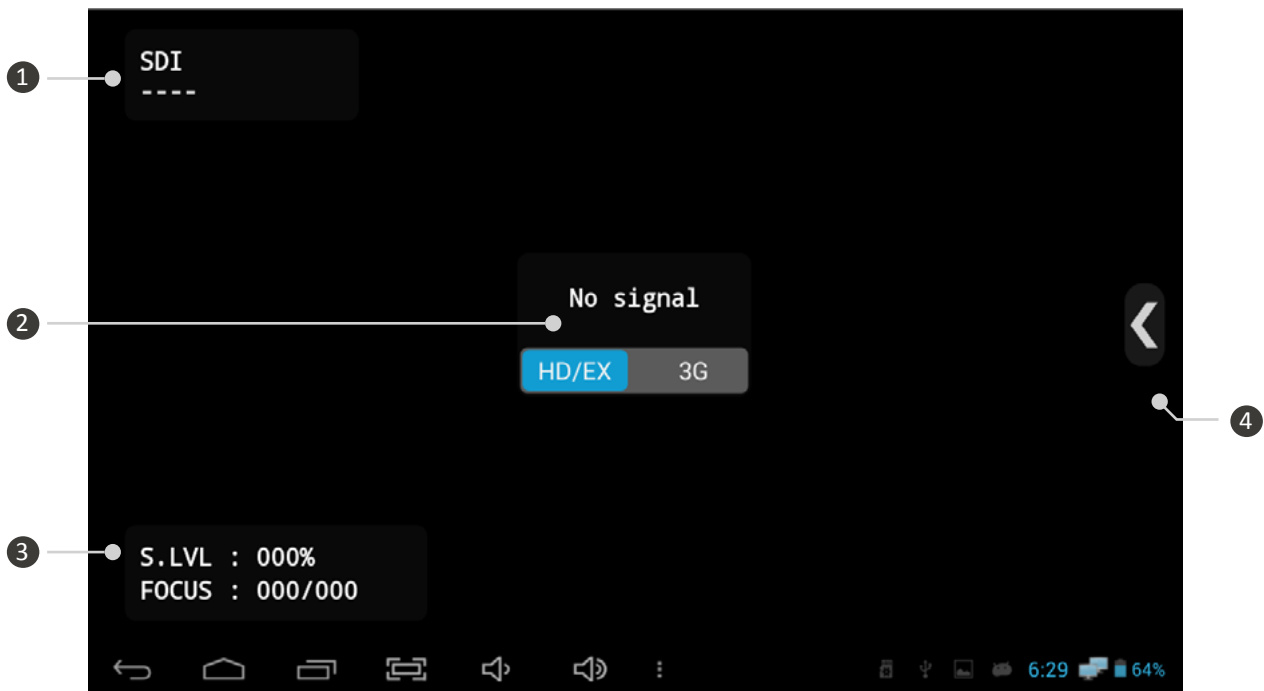


No.	Name	Description
①	IP Address	Enter the camera IP address for the Ping test.
②	Packet Size (byte)	Set the packet size of the Ping to transmit. It can transmit up to 1024 byte.
③	Count	Set the number of packets to transmit.
④	Timeout (s)	Set a specific time for the packet return. If the packet comes back after the specified time, a timeout error is generated.

Viewer App. Functions

Main Page

- Viewer App. means an App. for SDI, HDMI, AHD, CVI, TVI, CVBS.
- Wi-Fi should be off for SDI input. It may generate some video noise in a long-distance transmission.
- SDI products should be connected to SDI Input BNC port and HD analog/CVBS products shall be connected to Video Input BNC port for the relevant video signal input.
- When entering HDMI audio for a long time, the sync may have some errors.



No.	Name	Description
①	Video Input Status	When no video is entered, it displays "----" as shown in the above picture. The resolution of the input video is shown just after entering video and the window will be closed in 10 seconds.
②	Input Mode	When no video is entered, it displays "No Signal" on the screen. In SDI mode, HD/EX-SDI or 3G-SDI is selectable.
③	Level Meter/ Focus Meter	Level Meter function is for checking signal status more easily and accurately in numerical values. Signal size is proportional to the signal quality, so if the value is greater, it means the signal quality is better. Depending on signal size, the following letters and percentage will be displayed at the bottom left corner. SDI mode has S. Level meter and AHD/CVI/TVI/CVBS modes have A. Level and F. Level meters. 0 ~ 29%: NG 30~59%: Normal 60~100%: Good Focus Meter function is to adjust the camera focus more easily and accurately in numerical values. This function is shows the optimum and current focus status(depth) in real time. The focus depth is represented in numerical values between 255 and 0.
④	Video Menu	This menu includes PTZ/OSD/UTC, Record, Capture, Gallery(Playback), PoC functions and Settings, etc.

Viewer App. Functions

Supported Resolution

- When entering video, the signal format and resolution are displayed.
- Select 3G in the input mode for 3G-SDI video input.
- The Video Input Status window will be closed in 10 seconds after video is entered.

SDI
1920X1080p30

① HD-SDI Supported Resolution

- 720p 25/30/50/60 Hz Input
- 1080i 50/60 Hz Input
- 1080p 24/25/30 Hz Input

SDI [EX]
1920X1080p30

② EX-SDI Supported Resolution

- 720p 25/30/50/60 Hz Input
- 1080i 50/60 Hz Input
- 1080p 24/25/30 Hz Input

3G-SDI
1920X1080p60

③ 3G-SDI Supported Resolution

- 1080p 50/60 Hz Input

AHD
1920X1080p30

④ AHD/TVI/CVI Supported Resolution

- 720p 25/30/50/60 Hz Input
- 1080p 25/30 Hz Input

CVBS
NTSC

⑤ CVBS Supported Resolution

- NTSC/PAL Input

HDMI
1920X1080p60

⑥ HDMI Supported Resolution

- Up to 1080p 60HZ Input
- Specific resolutions are not supported

Viewer App. Functions

Signal Level Meter function

1. SDI Level Meter

- SDI Level Meter represents the current SDI signal status (signal size) in percentage.
- 100% means the most optimum signal status (the biggest signal size) and the lowest value is 0%.

S. LVL : 15% NG
FOCUS : 100/100

- ① No Good
- NG displayed in 0~29%
 - Severe signal attenuation

S. LVL : 45% Normal
FOCUS : 100/100

- ② Normal
- Normal displayed in 30~59%
 - Normal-state signal

S. LVL : 90% Good
FOCUS : 100/100

- ③ Good
- Good displayed in 60~100%
 - Signal in good condition

2. Analog Level Meter

- Analog Level Meter represents the current Analog signal status (signal size and brightness) in percentage.
- The Level Meter can measure signal attenuation rate and adjust the level of the UTP receivers.

A. LVL : 100%
F. LVL : 100%
FOCUS : 100/100

- ① A. Level
- A. Level represents the signal brightness size (Sync.) and the standard value is 100%. Lower value means more signal loss, that is, decreased brightness and increased noise.
- ② F. Level
- F. Level represents the video color size (Burst) and the standard value is 100%. Lower value means lower resolution and worse color reproduction.

! How to adjust the level value of UTP receivers

- It is possible to adjust the level value accurately in case of the UTP receivers
- Set both A. Level and F. Level close to 100% and adjust it by checking the actual video.

Viewer App. Functions

Focus Meter function

- Focus Meter represents the optimum and current focus status(depth) in numerical values
- The focus depth is represented in numerical values between 255 and 0. Adjust the optimum and current focus depth to be matched.
- This value depends on camera or lens types.



A. LVL : 100%
F. LVL : 100%
FOCUS : 098 / 225

Current Value Optimum Value



A. LVL : 100%
F. LVL : 100%
FOCUS : 225 / 225

CRC Error Count function

- CRC Error Count measures the number of CRC errors in HD/EX/3G-SDI mode.
- When HD/3G-SDI is entered, CCRC and YCRC values will be displayed. For EX-SDI input, XCRC value will be displayed.

CCRC : 000
YCRC : 000
TIME : 00 : 00 : 00

HD/3G-SDI Mode


XCRC : 000
TIME : 00 : 00 : 00

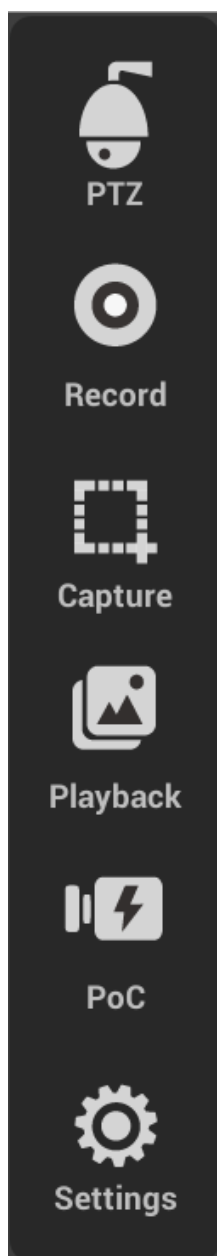
EX-SDI Mode

- ① To activate this function, press the Set button once after connecting the camera
- ② To initialize the values, press the Set button for two seconds during CRC measurement.
- ③ To terminate this function, press the Back button.

Viewer App. Functions

Video Menu Bar

- Available menu in this bar depends on video signal mode.
- Press the Menu, Mode button or Menu icon , the Menu bar will be popped up as shown as follows.

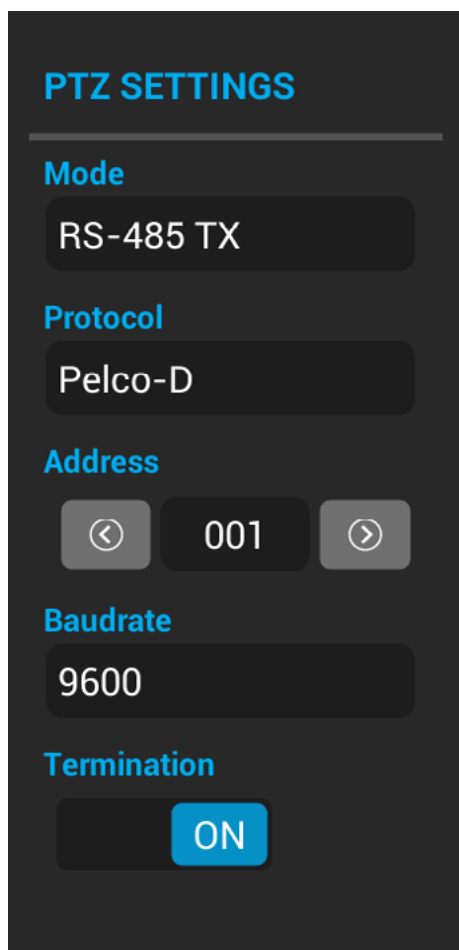


- ① PTZ
 - PTZ Capacity or OSD settings are available through RS-485.
 - It is possible to receive or analyze data by using RS-485.
 - Deactivated in HDMI mode.
- ② Record
 - It is available to record the input video.
 - Other Capacity is not available during recording.
- ③ Capture
 - It is available to capture the input video.
 - The recorded or captured images are saved in Gallery.
- ④ Playback (Gallery)
 - Recorded or captured images are stored here.
- ⑤ Power over Coaxial(Optional)
 - Supply power to camera over a coaxial cable.
 - This function is available for PoC camera only.
 - Other Capacity is not available during PoC operation.
 - Deactivated in AHD, TVI, CVI, CVBS, HDMI modes.
- ⑥ Settings
 - Set where to save the recorded or captured images.
 - Turn on/off the Level and Focus Meter functions

Viewer App. Functions

PTZ

- To implement PTZ function, the Mode, Protocol, Address and Baudrate must be set. For RS-485, match the polarity for cable connection.
- UTC function is activated in HD Analog and CVBS modes and by this function, camera control via coaxial cable is available.



- ① Mode Settings
 - This part includes RS-485 Tx, RS-485 Rx, Analyze and UTC.
 - RS-485 Tx mode is for PTZ and OSD control.
 - RS-485 Rx receives PTZ control Hex value.
 - Analyze mode analyzes protocols received through RS-485 port and confirms the command and Hex values at the same time.
 - UTC mode is to control a camera over coaxial cable.
- ② Protocol Settings
 - Set the protocol and device to control in the same way.
- ③ Address Settings
 - Set the address and device to control in the same way.
 - Address represents the camera ID.
- ④ Baudrate Settings
 - The available baudrate is 2400, 4800, 9600, 19200
- ⑤ Termination Resistance
 - 75Ω termination resistance is available.
 - Termination resistance is used to avoid of reflection effects which is generated by the impedance of transmitters.

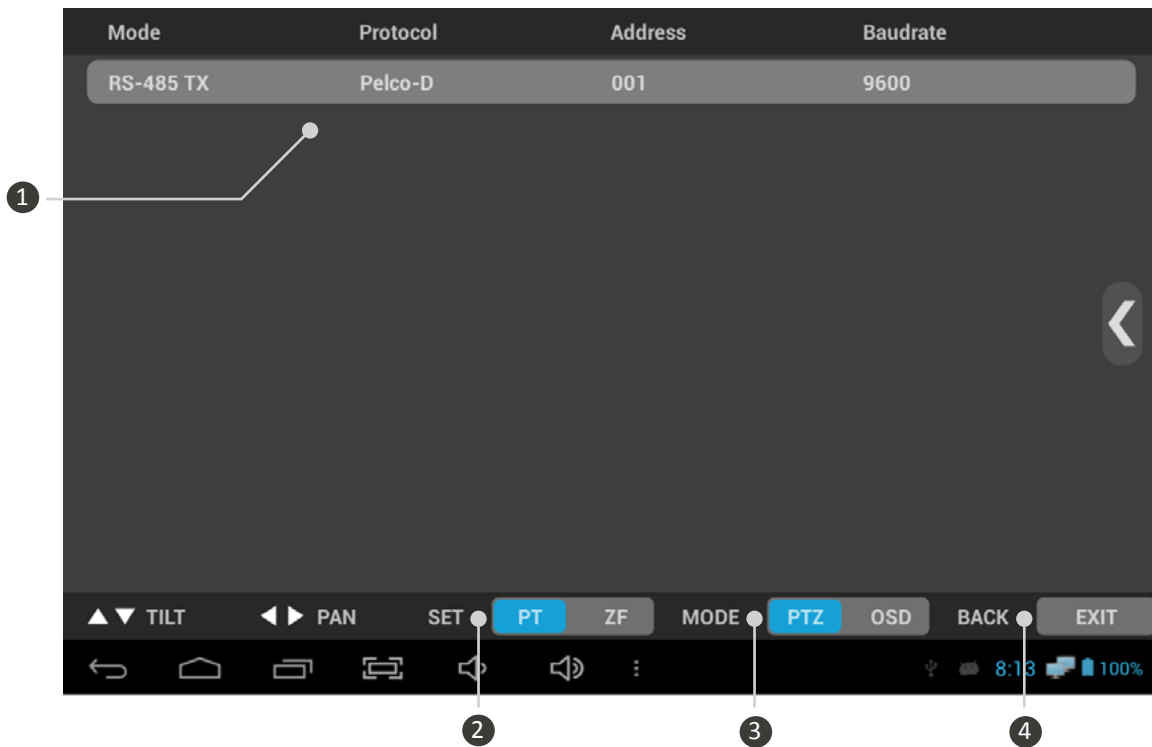
! Cautions for RS-485 Settings

- Make sure to check the polarity in RS-485 connection
- Protocol and Address settings are not required for use of RS 485 Rx.
- Address settings are not required to use Analyze function.
- Address and Baudrate settings are not required for UTC

Viewer App. Functions

RS-485 Tx

- The current settings are displayed on the top of the screen.
- Control the directions by arrow keys, referring to the instructions at the bottom of the screen.



No.	Name	Description
①	Setting Status	All setting values such as mode, protocol, address, baudrate are displayed.
②	PTZ Mode	In PTZ mode, you can select and change Pan/Tilt and Zoom/Focus by touch or set key. In OSD mode, the function will be implemented according to the selection keys.
③	Operating Mode	You can select and change PTZ or OSD mode. The set functions depend on the operating mode.
④	Back button	This button is to terminate RS-485 in PTZ mode and terminate OSD menu in OSD mode.

! Cautions for setting protocols

- Protocol commands depend on camera manufacturer.
- Appropriate protocol for camera shall be used.
- Back button may not work in OSD mode, depending on protocol.

Viewer App. Functions

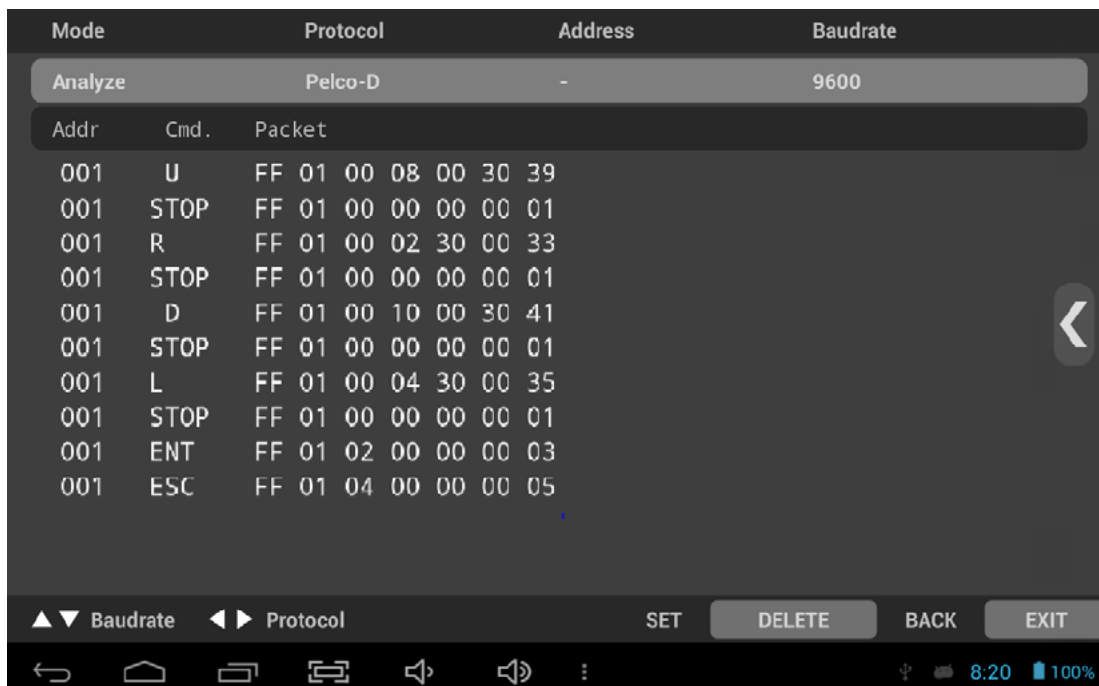
RS-485 Rx

- The current settings are displayed on the top of the screen.
- Data transmitted through RS-485 cable is displayed in HEX value on the screen.
- When the data is more than 264 Byte, the previous data will be deleted.



Analyze function

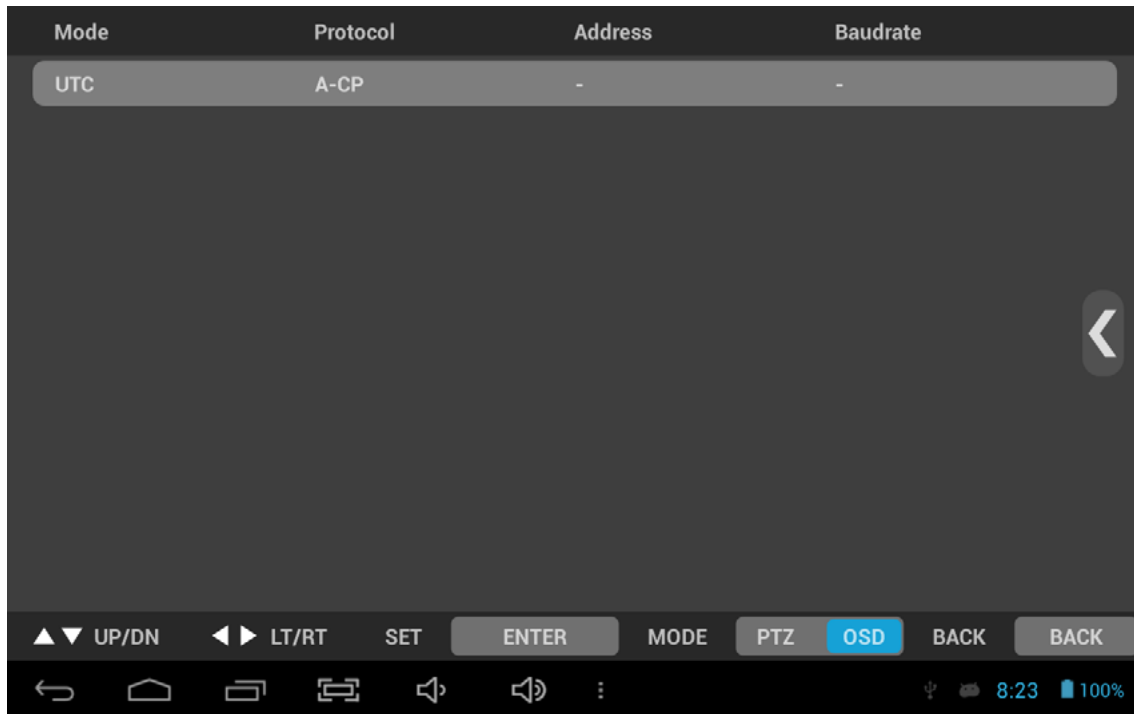
- RS-485 commands received from CCTV controller or external devices are displayed.



Viewer App. Functions

UTC

- UTC is available in HD Analog and CVBS modes.
- Camera PTZ or OSD settings are available over coaxial cable without any separate data lines.



No.	Name	Protocol	Supported Items
①	CVBS Mode	Pelco- C	Hanwha (Samsung) Techwin (Winner5), Pelco, D-Max (PIXIM)
②	AHD Mode	A-CP	Cameras supporting AHD UTC
③	TVI Mode	TVI UTC	Cameras supporting TVI UTC
④	CVI Mode	CVI UTC	Cameras supporting CVI UTC

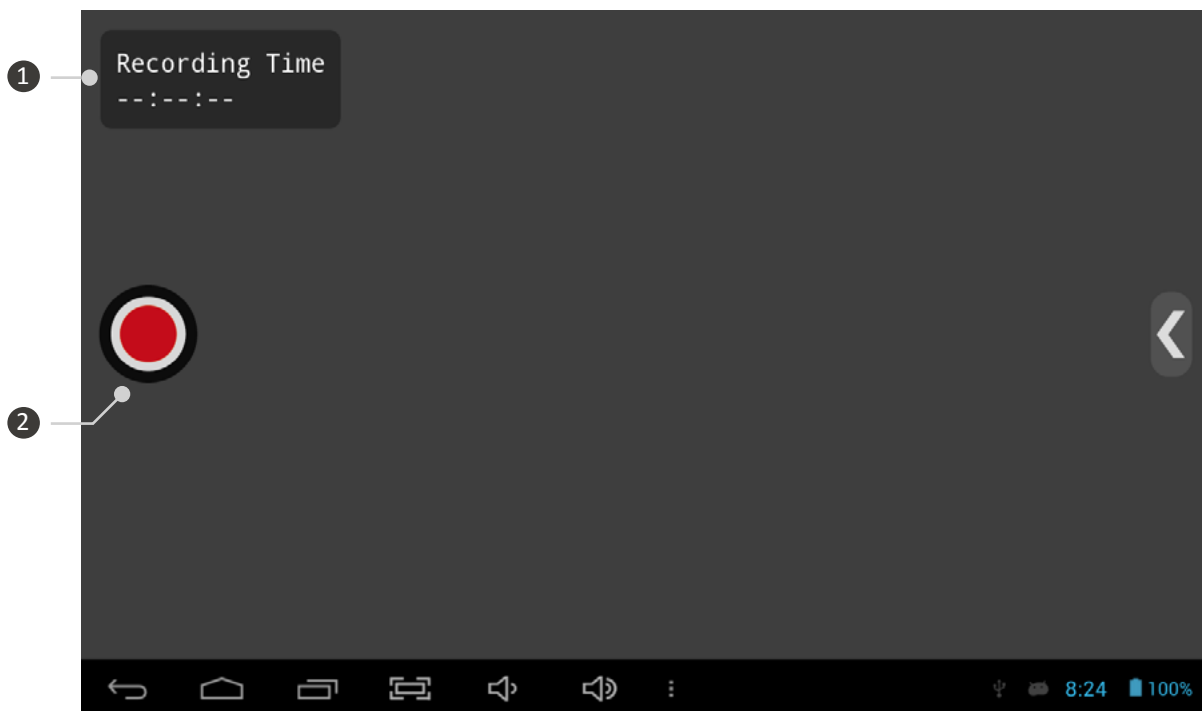
! Cautions for using UTC function

- UTC function for HD Analog may not work properly in a long distance
- Video may be flickering during UTP operation.
- UTC function for 3MP or higher-resolution cameras may not work properly, depending on the camera's brand.

Viewer App. Functions

Video Recording

- It is not recommended to record for a long time without any memory card.
- Mount Micro SD card if the internal storage capacity is not sufficient.
- You can set the storage location in Settings after mounting Micro SD Card.
- When recording video, it is saved in MP4 format.



No.	Name	Description
①	Recording Status	Check the recording time and status. Once the recording is finished, the recorded video will be stored in Gallery.
②	Recording Button	Start/End recording by pressing the recording button.

! Cautions for recording

- When the internal capacity is full, recording is not available anymore and will be terminated. The recorded images will be saved automatically.
- The quality of the recorded video depends on the video transmission quality.
- For AHD/TVI/CVI, up to 2MP can be recorded.

Viewer App. Functions

Video Capturing

- It is available to capture and save images in JPG format.
- Mount Micro SD card if the internal storage capacity is not sufficient.
- You can set the storage location in Settings after mounting Micro SD Card.



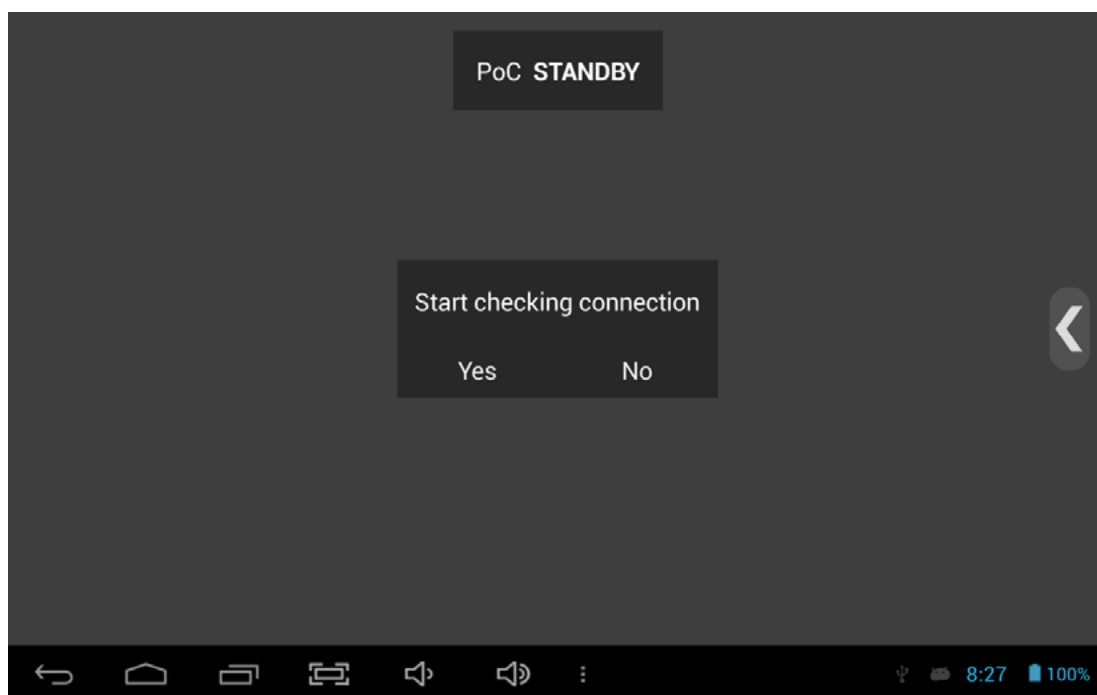
How to use Gallery

- The recorded or captured images are saved in Gallery.
- The routes for video generated in the IP App. and Viewer App. are displayed differently.
- If you unmount the Micro SD card during using Gallery App., some problem may occur in the stored files.

Viewer App. Functions

PoC function

- Supply power to the camera over coaxial cable.
- PoC function is activated in SDI mode and available for PoC cameras only.
- PoC function is optional.

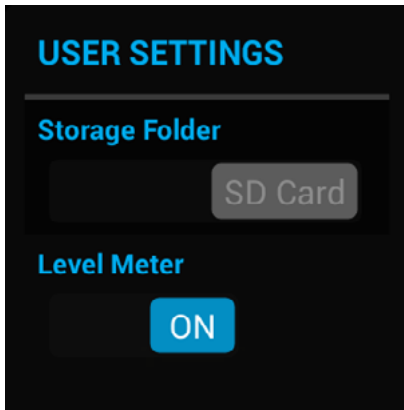


No.	Name	Description
①	PoC Standby	The step before operating PoC. One you select “Yes”, it starts trying to connect PoC.
②	PoC Connection Checking	If the connected camera is PoC camera after checking, it moves to the next step.
③	PoC Supply Standby	PoC camera is connected. To supply power to the camera, press “Yes”. Then, it moves to the next step.
④	PoC Power Supply	Supply power to the camera for its operation.
⑤	PoC Operation	PoC is being supplied to the camera currently.
⑥	PoC Cable Disconnected	This is displayed when removing the cable during PoC operation or when operating PoC function without connecting a cable.

Viewer App. Functions

User Settings

- This menu is to set the storage location, or turn on/off the Level/Focus meter functions.

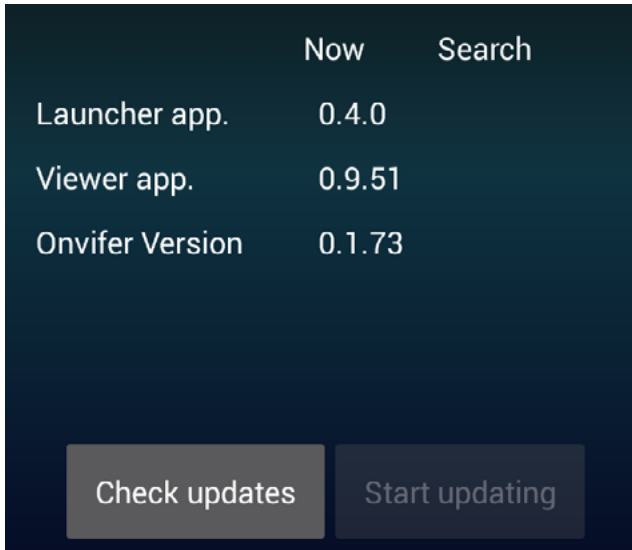


- ① Storage Folder
 - Set where to save the recorded or captured images.
 - Activated only when Micro SD Card is mounted.
- ② Level/Focus Meter
 - Turn on/off the Level/Focus meter functions.
 - The level meter will not be displayed in HDMI mode.

Appendix

App. Update

- Use update App. to update Launcher, Viewer and IP App.
- Available during WI-FI only.
- Enter My Apps to update App.



① Check updates

- Check the currently installed version during WI-FI.
- Not activated when the currently installed App. is the newest version.

② Start updating

- Activated when the currently installed App. is not the newest version.
- Tap this button to update each App. The update speed depends on WI-FI.

! When the update is not working properly

- Remove the App. and retry it if errors occur during the update.
- Retry the App. if it is stopped during the update.
- Check if there is sufficient storage space inside when parsing error message is displayed.

USB LAN Card

- Please use the USB LAN card that is provided in the package. Other USB LAN cards may not work with this test monitor.
- Turn on Wi-Fi in Settings after mounting the USB LAN card onto the test monitor to use Wi-Fi.



Appendix

Specifications

Model		IP Test Monitor	
LCD	Display Resolution		1280 X 3 (RGB) X 800
	Size		7.0 inch (Diagonal)
	Pixel Pitch		0.117(H) X 0.117 (V) mm
	Brightness		400 cd/m ²
	Viewing Angle		89deg (Horizontal) / 89deg (Vertical) Total: 178deg (IPS Panel)
	Response Time		11ms
Video	INPUT	HD-SDI	1.485Gbps
		3G-SDI	2.970Gbps
		EX-SDI	270Mbps
		HDMI	Up to 1080p 60Hz
		AHD	1280x720p 25, 30Hz
			1920x1080p 25, 30Hz
		CVI	2560x1440p 15, 25, 30Hz
			1280x720p 25, 30, 50, 60Hz
		TVI	1920x1080p 25, 30Hz
	2560x1440p 25, 30Hz		
2592x1944p 12.5, 20Hz			
CVBS	NTSC, PAL		
LAN	10 / 100Mbps - IP Cam & PoE (Power of Ethernet) Support		
OUTPUT	HDMI	1080p 60Hz	
Measurement	Analog	A.LEVEL	10 ~ 118 %
		F.LEVEL	20~120 %
		ERROR RATE	± 2%
		FOCUS LEVEL	0 ~ 255

Appendix

Specifications

Model		IP Test Monitor	
Measurement	SDI	SDI LEVEL	0 ~ 100 %
		ERROR RATE	± 2%
		FOCUS LEVEL	0 ~ 255
	IP	FOCUS LEVEL	0 ~ 255
Power	INPUT		DC 12.6V (Exclusive Adapter)
	OUTPUT		DC JACK 12V / 500mA
			USB 5V
Connection Port	HDMI Input / Output		HDMI C Type F
	HD-SDI Input		BNC-F
	LAN Input		RJ-45
	Analog Input		BNC-F
	USB Input		USB 2.0
	Micro SD Input		Standard Type
	RS-485 Input		2P Terminal Block
Battery		Li-Polymer 11.1V, 5,680mAh	
Language		Korean, English, Japanese, Italian, German	
Operating Temperature		0°C ~ + 50°C	
Operating Humidity		0% ~ 80%	
Storage Temperature		-10°C ~ + 50°C	
Material		PCABS Flame Retarding Material	
Weight		1014g	
Dimensions		246(W) X 160(H) X 49.9(D)mm	

Appendix

FAQ

Symptom		Checking Method
No video display	Viewer	Reboot this test monitor.
		Check the connected cable status. Video may not be displayed, depending on the damage or length of the cable.
		Check the connected camera status.
		Check the termination resistor status. The signal size depends on the termination resistor settings.
		Check the battery. There may be some problems with power.
		Check the camera resolution. The supported resolution depends on video signal type.
	IP	Check the connected LAN cable status. There may be some problems with the video, depending on the damage of the cable or interference.
		Check the cable type. There may be some problems with the product operation, depending on cable types.
		Check the WI-FI status if connected wirelessly. The video may not be displayed if the strength of the signal is weak or the signal dies frequently.
		Check the networking settings. If setting value is different such as the camera IP address, subnet mask and gate way, the video may not be displayed.
		Check the network settings of this product. The IP range of the IP camera and this product should be same to check the video.
		Check if 'Use Ethernet' is marked in Monitor Settings. It must be marked all the time for using IP App.
		Check the status of connected network devices such as routers, Hubs, etc. There may be some problems with the network settings.
		Check if the camera supports ONVIF. This product supports ONVIF protocol cameras.
		Check the supported camera codecs. This product supports H.264, JPEG codec.
Check the camera network mode. This product does not support DHCP server and is available for connection in manual IP.		

Appendix

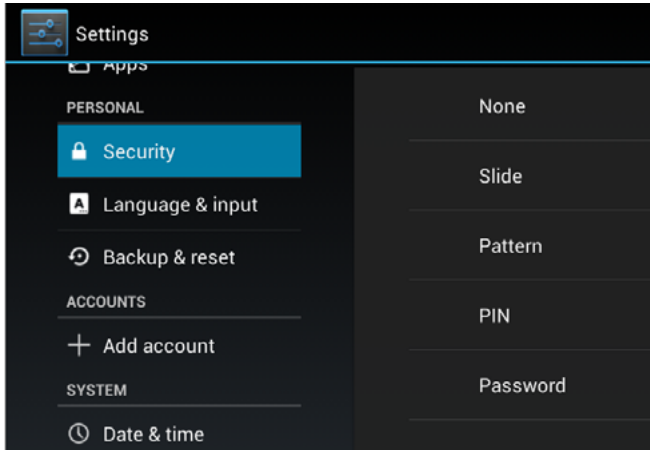
FAQ

Symptom		Checking Method
Video is NOT displayed	IP	When a camera uses any separate RTSP port, it may not be connected. For camera settings, please overwrite and change the RTSP port. - The default RTSP port is 554. It may depend on each camera brand.
		If you initialize a camera after saving its configuration, it may not be able to connect the camera via the saved configuration. It may be caused due to the difference of the initialization methods per camera brands. In this case, you should search the camera and follow the other steps for its connection again.
PTZ and/or OSD are Not available	RS-485	Check the connected cable status. It is not available in different polarity.
	UTC	Check camera UTC protocols. The protocols depend on each camera manufacturer.
		Check the length of the connected cable. UTC may not work, depending on the length of the cable.
Micro SD and/or USB are NOT available		Check the termination resistor status. There may be some problems with UTC due to the termination resistor settings which generate change of the signal size.
		Check Micro SD/USB status. There may be some problems with the operation if the product is bent or cracked.
		Check the manufacturers of Micro SD/USB. If not certified memory cards are used, there may be some problems with the product operation.
		Unmount and mount Micro SD/USB again. Recognition errors may be generated intermittently.
		Check the USB supported version. This product supports USB 2.0
The test monitor is paused		Reboot this product. There may be some problems with the program.
		Press and hold the power button for about 7 seconds to shut down this test monitor forcibly when the touch pad or D-pad does not work properly. After then, please turn it on again for use.
		Press and hold the power button for about 7 seconds to shut down this test monitor when the monitor is paused during use . After then, please turn it on again for use.

Appendix

Extra Features

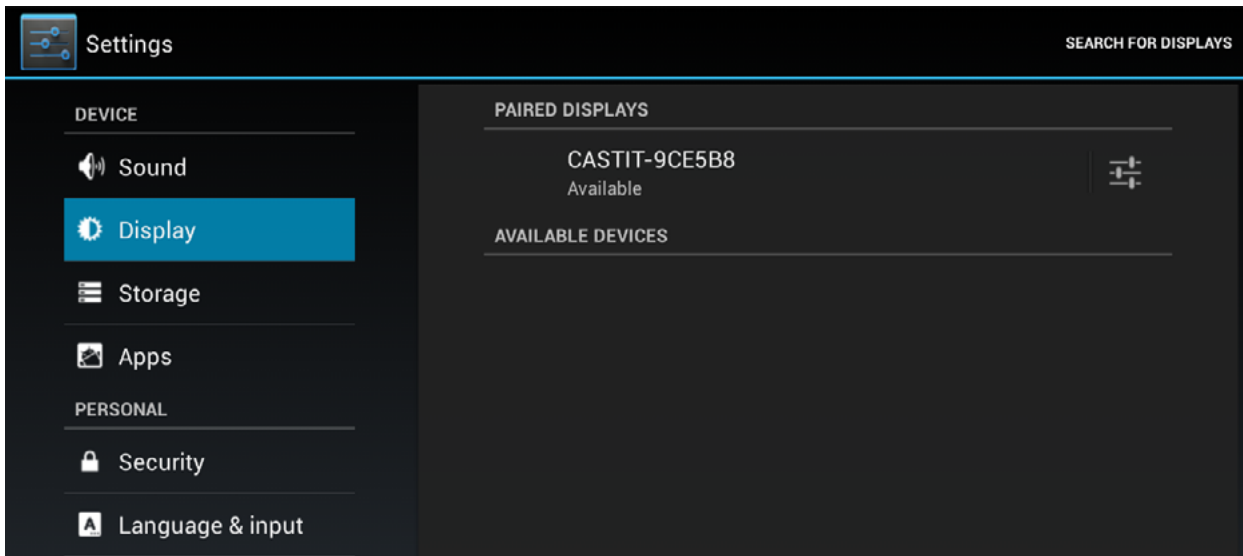
- Security (Lock) mode



① Lock mode setting

- Lock for prevention of robbery
- Initialization is not available if you do not remember password or pattern once you lock it.

- Miracast mode



① Miracast

- Search products currently available for Miracast by entering Display < Wireless Display < Search Display
- Miracast is technology that share video and audio by wireless connection. It is available during Wi-Fi.

Appendix

Warranty Certificate

Model No.		
Serial No.		
Distributor		
Date you purchased		
Place you purchased		
Warranty Period		Two (2) years from the date of purchase
Purchaser	Name	
	Address	

This product has passed thorough quality control and test, and if this gets broken during normal use, we provide the two-year warranty service.

- Contact your distributor after checking out any defect in the products.
- The warranty covers only those defects that arise as a result of normal use of the product and repair service free of any charge will be provided according to the warranty certificate.
- We charge you with the fee for parts and services provided despite of free warranty service period in case of:
 - Breakage or trouble made by natural disaster (lighting, fire, flood, tsunami, etc.)
 - Breakage or trouble made by breaking the product guide or manual.
 - Breakage or trouble made by wrong power voltage or frequency.
 - When you want to reassemble for full system or replace parts within the warranty service period.
 - When unauthorized person modified or made damage on the product trying to repair it.