LinkView 1200S

Full-HD Endoscopy Camera

Shenzhen Tyrui Technology Co., LTD

Company Introduction>>>

Kanger medical instrument Co., Ltd. was established in 1999. Our company is a professional manufacturer engaged in the research, development, production, sale and service of whole sets of medical endoscope camera systems. We are located in Tonglu and have convenient transportation accessory.

Our company is a medical device manufacturer that integrates research, development, production and sales. The innovative technology, strict quality management system, strong technical team and advanced medical remote after-sales service enhance our market competitiveness continuously. Meanwhile, we will earnestly implement and comply with the laws and regulations of the medical industry, strive to promote the development of minimally invasive industry at home and abroad and serve for human health wholeheartedly under the guideline of “truth-seeking and pragmatism, unity and cooperation”.

CATALOG

CATALOG

Chapter 1: Overview

Operation Instruction

1. In the use of the product, you must be strict compliance with the electrical safety regulations of the nation and region.
2. Please make sure that the plug is firmly connected on the power socket.
3. If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the camera yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)
4. Do not touch CMOS modules with fingers. If cleaning is necessary, use clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period, please turn on the lens cap to protect the CMOS from dirt.
5. Do not aim the camera at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of CMOS at the same time.
6. The CMOS may be burned out by a laser beam, so when any laser equipment is on using, make sure that the surface of CMOS will not be exposed to the laser beam.
7. Do not place the camera in extremely hot, cold(the operating temperature shall be - 10℃ ~ + 60℃), dusty or damp locations, and do not expose it to high electromagnetism radiation.
8. Keep the camera away from wet environment while not using.

Packing List

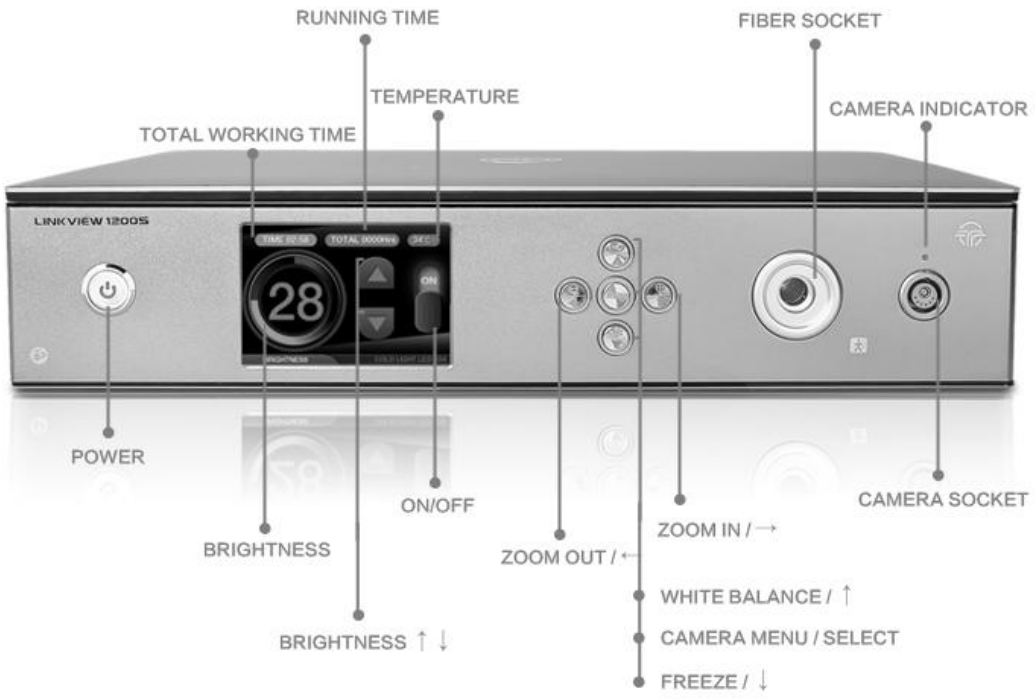
■ LinkView 1200S main unit	1
■ LinkView 1200S hand-held camera head	1
■ Optical coupler (attached on handheld camera head)	1
■ Optical light guide 2.5 meter long	1
■ HDMI cable	1
■ USB3.0 cable	
■ Fuse	2
■ Manual(digital version)	1
■ CMOS cleaning swab	5
■ Power cable	1

Technique Data

Image Data	Sensor	1/1.9” Sony IMX CMOS
	Pixels	2,130,000 Pixels
	Output Interface	HDMI, SDI, VGA,DVI,CVBS
	Output Resolution	1920*1080/(30/60fps)、1280*720…
	White Balance	Auto/Auto ext/Preset/Manual
	Digital Zoom	1-16X
	Image Freeze	Yes
	Brightness Adjustment	Yes
	SNR	>42dB(AGC off)
	Scanning Mode	Progressive Scanning
	Min-illumination	0.00017LUX
	Digital Noise Reduction	Yes
	ACE&WDR	Off/Low/Middle/High; WDR SNR:120Db
	Image Mirror	Yes
	Image Position	Vertical
	Back Light Compensation	Yes
Screen Data	Screen Size	15.6”
	LCD resolution	3840*2160
	Gamut	100% Adobe RGB
	Support Color	16.7M(8-bit)
	Work Mode	IPS
	Viewing Angle	89/89/89/89
	Luminance	500cd/㎡
	Contrast Ratio	1000:1
Light Source Data	Light Source	LED
	Power Assumption	100W
	Lux	>4,000,000Lux
	Color Temperature	5500K
	Color Rendering Index	92
System Data	Total Power Assumption	140W
	Input Voltage	AC110V-250V 50/60Hz
	Noise	<30dB
	Environment	5-40℃
	Dimension	370mm*240mm*75mm
	Net Weight	4.5Kg

Chapter 2: Operation

Front Panel



Output & Connection

1 Output Interface

2 Output Resolution

1、 Support multi monitor / computer at same time.

2、 Resolution of each output port is the same.

3、 Resolution can be set up in menu of camera, 1080P/60, 1080P/50, 1080P/30, 1080P/25, 720P/30 can be chosen

3 Connect to Monitor

1. Make sure which resolution is supported by Monitor, pay attention to difference of 1920X1080P50 and 1920X1080P60。
2. Set correct resolution in camera menu
3. Connect main unit and monitor by HDMI cable or other cable
4. Connect power cable and turn on main power (on back of main unit)
5. Connect camera head and light guide to main unit.
6. Connect endoscope to light guide and camera head.
7. Turn on power on front panel of main unit.
8. If everything is done correctly, the power indicator and camera indicator will be on and there will be image on monitor.
9. If power indicator is not on, please check power cable and power switch on back of main unit.
10. If there is no image, please check resolution setting and try to switch off and on monitor.
11. Adjust light intensity
12. Enter main menu, set favored parameters.

If the camera indicator is not on, in most cases it is because camera is switched to technical mode by pressing keys in certain sequence. Please press the right button for 3 times and then press “menu” key, the camera will restore to normal mode.

4 Connect to Computer

1. Support most operation system include Windows® 、MacOS、Linux
2. No driver required.
3. If operation system is Window10, please use “CAMERA” software (can be found in “start” menu
4. If operation system is Windows 7, please use system build-in camera software, google the method to find it.
5. Third-party software such as “Debut”“Minivcap””viewplaycap” “VLC””Media encoder””Protplayer” ect are all supported.
6. If system is MacOS, please use OBS studio or quick time player
7. Output resolution of is 1920X1080/60FPS, in some software, this need to be set manually.
8. If power indicator is not on, please check power cable and power switch on back of main unit.
9. Please change settings on monitor to get ideal image color
10. Camera will be recognized as “Linkview1200 USB3.0 “ on device list.

Light Source Operation.

1 Turn On/Off

1. Light source and be turned on and off individually when both main power (on back of main unit) and power are turned on.
2. By touching the key “on/off” on touch screen, the light source and system fans will be turned on and off. (Meanwhile the camera is still powered and working)

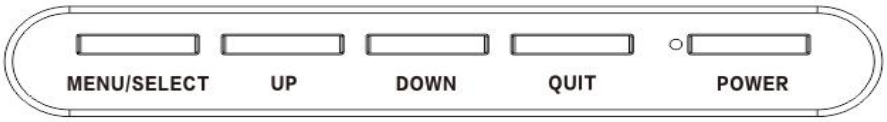
2 Brightness Adjustment

1. Press key  once, light intensity will increase 1%, make it faster by keep pressing for more than 2s.
2. Press key  once, light intensity will decrease 1%, make it faster by keep pressing for more than 2s.
3. When switched on, light intensity will be resumed by aid of memory function.

3 Time &Temperature Indicator

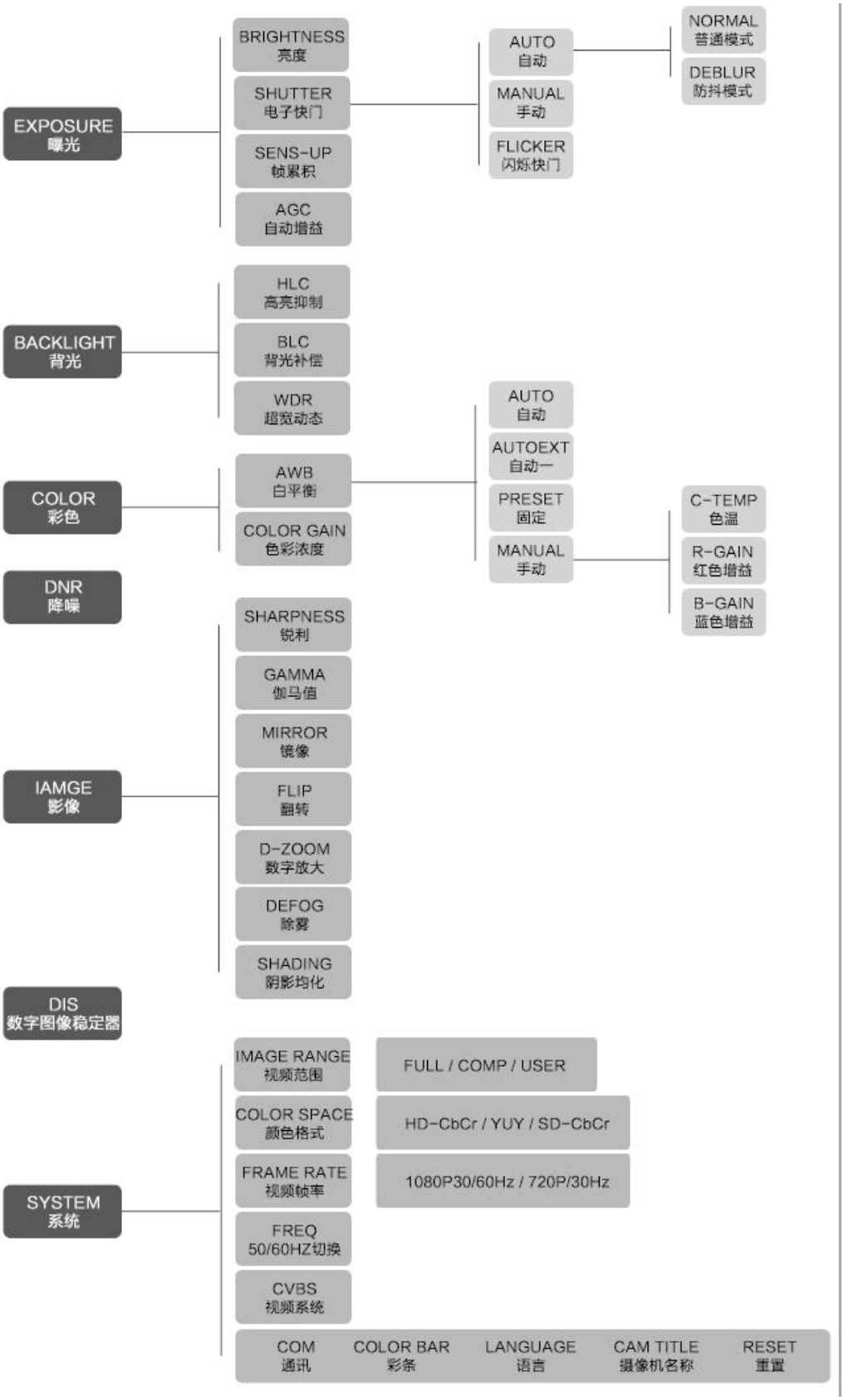
1. Current running time, total working time and temperature of light are indicated on top of the screen.
2. Normal temperature is under 70℃， If the temperature of light source increase to 70℃， please check fans.
3. The 2 timers are for light source only，camera working time is not counted
4. The total running time maybe not zero as we need to test before shipping

Monitor Operation.



1. Monitor need to be turned on separately by pressing “POWER” key every time.
2. No need to power off separately (controlled by main power key)
3. Monitor parameters can be adjusted

Menu Tree



Menu Operation

1 EXPOSURE

1. **BRIGHTNESS**: 0-20
2. **SHUTTER**: Auto-Normal mode is recommended.
3. **SENS-UP**: 0 is recommended
4. **AGC**: Automatically increase brightness when there is not enough illumination, but will result more noise.

2 BACKLIGHT

1. **HLC**: High light control will waning over-exposure area by colored, in most cases should be shut off.
2. **BLC**: Background light compensation can increase brightness of certain area automatically when it is too dark. This area can be specific manually.
3. **WDR**: Average the brightness of different area in image. This is useful when there is too dark and too bright area at the same time.

3 COLOR

1. **AWB**:
   i. **AUTO** and **AUTOext** are both automatic mode, AUTOext is recommended in hysteroscopy.
   ii. **PRESET** mode will lock the white balance. Move camera towards a with paper or gaze, press WB key on either camera head of main unit, after 3 second the white balance will be adjusted and locked.
   iii. **MANUAL**: Red/blue color and color temperature can be adjusted manually.
2. **COLOR GAIN:** 0-20

4 DNR

Digital Noise Reduction will reduce noise in image, but will reduce sharpness. Medium is commended.

5 IMAGE

1. **SHARPNESS**: 0-10
2. **GAMMA**: This should be adjusted according to different monitor.
3. **MIRROR:** ON/OFF
4. **FLIP**: ON/OFF
5. **D-ZOOM:** 0-16X
6. **ACE:** Increase brightness of dark area automatically. It is same function as WDR but shrinked.
7. **DEFOG:** OFF in most cases.
8. **SHADING:** Increase brightness of the image when there is not enough illumination.

6 DIS

Digital Image Stabilizer is used for fast moving image, usually be shut off.

7 SYSTEM

1. **COM**: Preserved communication component.
2. **IMAGE RANGE**: Brightness adjusted. FULL is recommended
3. **COLOR SPACE:** Choose according to monitor.
4. **FRAME RATE**: Choose output resolution
5. **FREQ:** 50Hz and 60Hz, 60Hz is commended.
6. **CVBS:** CVBS signal is not HD, it can be regarded as safe mode when there is wrong output resolution which monitor does not support and lead to black screen. User can reach camera console by BNC cable to set correct output resolution. So please keep it ON always.
7. **COLOR BAR:** Show color bars when there is no input signal.
8. **LAUGUAGE:** Choose manual language.
9. **CAM TITLE:** Name camera.
10. **RESET:** Press menu key to restore factory settings.

ATTENTION: Camera default color will be changed after RESET, need to reach hidden menu to re-adjust (read Chapter3: Color Default Setting)

Camera Shortcuts

	MENU OFF	MENU ON
WB	White balance Auto/Lock	Up
⊖	Zoom Out	Left
⊕	Zoom In	Right
❄	Image Freeze	Down
CENTER	Menu On	Select

Chapter3: Color Default Setting

1 Camera Default Color

1. Default color can be adjusted in hidden menu.
2. Access camera menu, highlight “SYSTEM”, press key in sequence “Left-Left-Right-Right-Center”
3. In the hidden menu, move to “COLOR ADJ” and press center key.
4. Adjust color settings as following:

   YELLOW GAIN 18

   BLUE GAIN 66

   GREEN GAIN 52

   RED GAIN 24

   YELLOW HUE 173

   BLUE HUE 154

   GREEN HUE 122

   RED HUE 137
5. Press “RETURN” to quit camera menu, the setting will be stored
6. You can also adjust default color setting as you wish

2 Monitor Default Setting

1. Brightness volume: ECO-PRESET 2, DCR-OFF, HDR Mode-OFF
2. COLOR TEMP volume: COLOR TEMP-USER: RED 50, GREEN: 48, BLUE:42
3. MISC Volume: LOW BLUE LIGH-0 OD-OFF

Chapter4: Trouble-Shooting

FAQ

- **Autoclavable?**

  Only optical coupler which can be screwed off from camera head is autoclavable.

- **Waterproof?**

  IP8X water proof.

- **Image not clear?**

  i. Rotate the focus ring on optical coupler to make image clear.

  ii. Make sure camera works under highest resolution which monitor supported.

- **No image?**

  Follow instruction of **"Chapter2: Operation-output & Connection-Connect to Monitor"**.

- **Only bands of color shown?**

  i. Turn off power and main power of camera.

  ii. Check camera head, make sure the camera indicator is on.

- **Too small / large image?**

  There is 22mm coupler comes in the package, usually it is suitable for 4-10mm diameter endoscopes. You can buy extra optical coupler to replace. Please buy F25 , F28 or F32 coupler if need a larger image as well as F20 or F18 for smaller image.

- **Too much noise in image?**

  i. Increase value of DNR.

  ii. Decrease value of SHARPNESS.

- **Not black enough black field (outside the circle image)?**

  Decrease value of GAMMA.

- **No power indicator ?**

  i. Check power cable.

  ii. Make sure to turn on main power switch on back of main unit.

- **No camera indicator?**

  Make sure the camera head is connected to main unit correctly.

 **If the camera indicator is not on, in most cases it is because camera is switched to technical mode by pressing keys in certain sequence. Please press the right button for 3 times and then press "menu" key, the camera will restore to normal mode.**

Note

Maintence

Keep system in dry environment, especially hand-held camera.

About Auto White Balance

It is well know that auto white balance is accurate and convenient. Camera will determine white and black field from current image, and render color to all object in current image. But if you move the camera, the image goes into camera changed as well as white and black field, color rendering will all be changed simultaneously. This makes same object changes colors from time to time along with camera movement.

This problem is solved by auto white balance lock. After lock the auto white balance, white balance parameter inside camera will not change to provide accurate color.

Cleaning Camera

If there is black spot on screen, there may be dust on camera head or CMOS. Please screw off the camera head and use cotton swab or non-dust cloth together with **PURE** alcohol **WITHOUT WATER** to clean the lens on both sides.

If problem keeps, please clean the image filter between camera coupler and CMOS. It can be screwed off by rotating. Again, please use cotton swab or non-dust cloth together with a little **PURE** alcohol **WITHOUT WATER**.

Uncleaned dust is on CMOS, use cotton swab or non-dust cloth together with a little **PURE** alcohol **WITHOUT WATER** towards **one direction**.

Tips: Dust will be easier to be found under strong light.

NOTE: Common medical alcohol can't be used because there will be water mark left on CMOS. You must choose 99.7% pure alcohol.

Choose Coupler

CCD size	Laparoscopic	Nasoendoscope	Laryngoscope	Hysteroscopy	Arthroscopic
1/2"	35mm	28mm	28mm	28mm	28mm
1/3"(this machine)	28mm	22mm	22mm	22mm	22mm
1/4"	22mm	18mm	18mm	18mm	18mm