**LinkView 1200**

# Full-HD Endoscopy Camera

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 1200 main unit 1
- LinkView 1200 hand-held camera head 1
- Optical coupler (attached on handheld camera head) 1
- Optical light guide 2.5 meter long 1
- HDMI cable 1

- Power cable 1
- Fuse 2
- Manual(digital version) 1
- CMOS cleaning swab 5

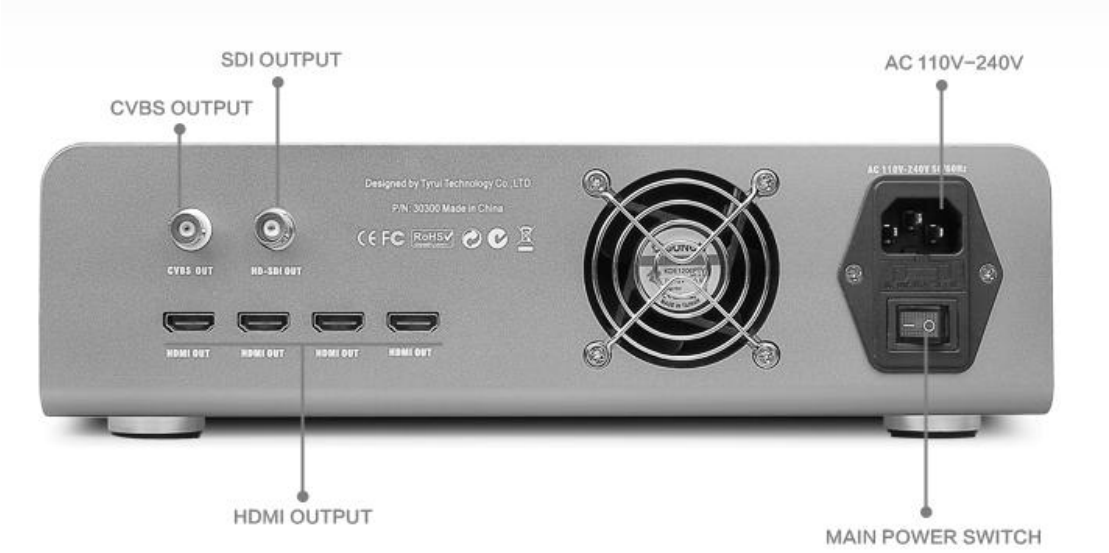
## Technique Data

| | | |
|---|---|---|
| **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 |
| **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 | 115W |
| | Input Voltage | AC110V-250V 50/60Hz |
| | Noise | <45dB |
| | Environment | 5-40℃ |
| | Dimension | 298mm*214mm*86mm |
| | Net Weight | 2.5Kg |

## Front Panel


# Output & Connection

## 1 Output Interface




## 2 Output Resolution

1、 Support multi monitor at same time.

2、 Resolution of each output port is the same.

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

4、 CVBS output is always 960X576

### 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.**

# 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)

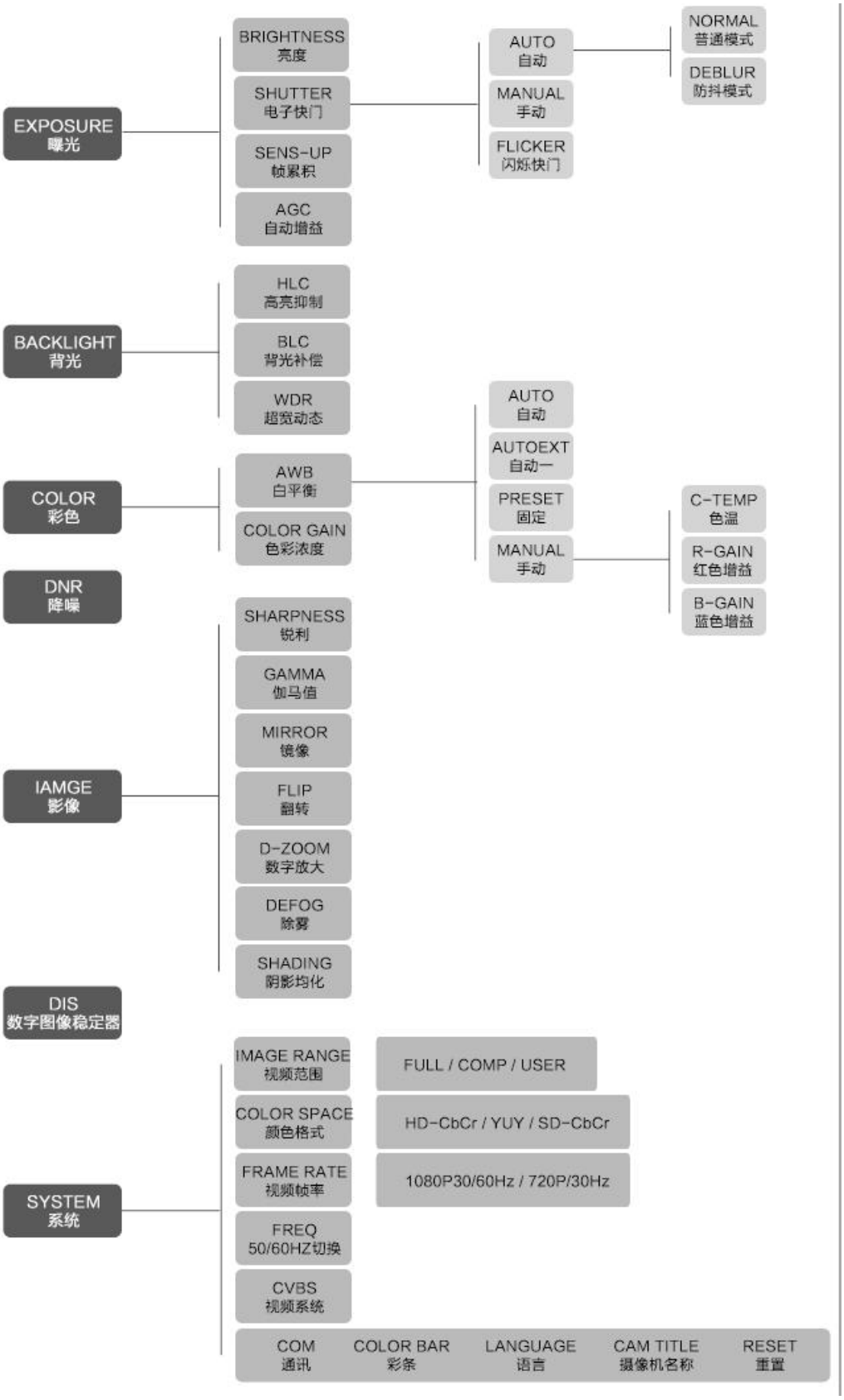
### 2 Brightness Adjustment

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

## 5. Menu Tree


EXPOSURE 曝光
BRIGHTNESS 亮度
SHUTTER 电子快门
SENS-UP 帧累积
AGC 自动增益
AUTO 自动
MANUAL 手动
FLICKER 闪烁快门
NORMAL 普通模式
DEBLUR 防抖模式
BACKLIGHT 背光
HLC 高亮抑制
BLC 背光补偿
WDR 超宽动态
COLOR 彩色
AWB 白平衡
COLOR GAIN 色彩浓度
AUTO 自动
AUTOEXT 自动一
PRESET 固定
MANUAL 手动
C-TEMP 色温
R-GAIN 红色增益
B-GAIN 蓝色增益
DNR 降噪
IAMGE 影像
SHARPNESS 锐利
GAMMA 伽马值
MIRROR 镜像
FLIP 翻转
D-ZOOM 数字放大
DEFOG 除雾
SHADING 阴影均化
DIS 数字图像稳定器
SYSTEM 系统
IMAGE RANGE 视频范围
FULL / COMP / USER
COLOR SPACE 颜色格式
HD-CbCr / YUY / SD-CbCr
FRAME RATE 视频帧率
1080P30/60Hz / 720P/30Hz
FREQ 50/60HZ切换
CVBS 视频系统
COM 通讯
COLOR BAR 彩条
LANGUAGE 语言
CAM TITLE 摄像机名称
RESET 重置

# Menu Operation

## 1 EXPOSURE

1. **BRIGHTNESS**: 0-20
2. **SHUTTER**: Auto-Normal mode is recommended.
3. **SENS-UP**: 0 or X2 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.

# 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: 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 |