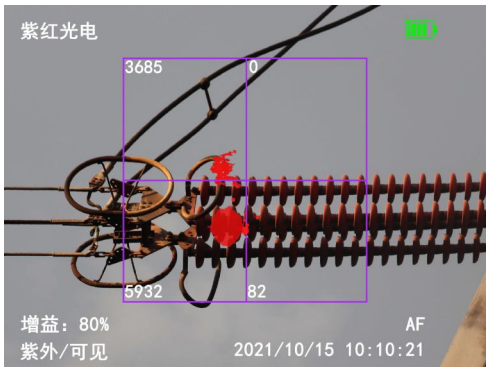
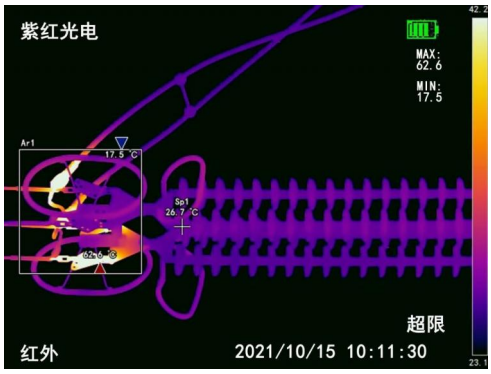
MULTI-SPECTRAL (UV+IR+VI) CAMERAS

Corona Defects Detection Systems For Substations and Transmission Lines

ZH580

ZH580 Daytime Corona Cameras is a non-destructive testing (NDT) technology which is now widely used for Substations and transmission lines corona defects detection. ZH580 takes the UV detecting technology, out-of-band rejection UV filter technology and visual optical fusion algorithm technology. It can eliminate the disturbance of sunlight background and detect wear UV signals generated by corona. ZH580 is an advanced multi-spectral camera with the combinations a UV camera, an infrared (IR) camera and a visible light camera, which provides the possibility of performing a corona and thermal inspection simultaneously and efficiently.





Application

Substation
Transmission Lines

High Voltage Electrical Laboratory
Live Inspection Service for Electric and Power

- No tailing, pinpointing for precise positioning
- Photons counting for quantitative analysis
- Daytime and night application
- Adjustable UV gain from 0-100%
- Closed encloser, low heat, continuous stable operation
- 5 inch Large deluxe reflective LCD

- High IR pixels: 640*480
- Temperature Range: -20 - 150 ℃
- Temperature Accuracy:± 2℃
- High Overlay Accuracy
- More than 3 hours of battery operation
- Portable and compact, 2.9kg

High Sensitive UV Sensor

High performance UV Sensor, can detect very weak Corona signal, 240-280nm out-of-band rejection Technology,can be used daytime and night.

Ergonomic Design

Compact structure with built-in Li battery, One key one function. Easy operation. Portable, 2.9 kg. Standard tripod mounting hole. Large size sun shading board.

Precise Defects Positioning

With 1 mard overlay accuracy for the fusion visible, IR, UV images. By adjust gains, to obtain pinpoint UV signal and analyse the exactly location of the defects.

Rugged Reliable

Rugged reliable design, applicable to severe atmospheric environment for continuous stable operation.High quality material with excellent performance.

Photons Counting

By 1-4 Region of Interest (ROI), accurate photon numbers can be obtained to analyse the serious of defects.

Simultaneous and Efficient

Integrated information about the faults, jointly locating partial discharges and abnormal temp spots.

Still Pictures and Video

Still pictures and videos can be recorded and played back. All data can be stored in 32G TF card for further analysis.

High Pixels IR Sensor

640*480 pixels Infrared Sensor with ±2 accuracy.Display the temperature point and its position in real time.

ZH580 Technical Specifications

UV - OPTICAL PROPERTIES	
Spectral Range	240 ~280 nm
Minimum Discharge Sensitivity	1Pc/10m
Minimum RIV Sensitivity	3.6dBμV (RIV) @ 10m
Minimum UV Sensitivity	2.0×10^{-18} Watt/cm²
Focus & Focus Range	Auto, 3m ~ ∞
F.O.V	9.0 * 6.75 °
VISIBLE - OPTICAL PROPERTIES	
Focus Range	3m ~ ∞
Minimum Visible Light Sensitivity	0.1 Lux
Focus	Auto
IR - OPTICAL PROPERTIES AND DISPLAY	
Pixels	640 * 480
Temp Range	-20 - 150 ℃
Temp Accuracy	±2
Display Modes	Combine(UV+VIS), UV only, Visible only
Display Type	5 inch color Transflecctive Sunlight readable LCD
Display Brightness and Resolution	450cd/㎡, 640*480
CONTROLS AND OPERATION	
Status Modes	real time, sleep, power off
Continuous Opereation	Continuous operation, no cooling system
Controls Command	One for One keyboard input
SAVE AND PLAYBACK	
Video	Provided
Still Images	Provided
Data Save	32G TF Card
Video Format	MP4
Stills Format	JPG
Playback function	Video and Still Images
CHARACTERISTICS	
Detector	Life without attenuation
Images fusion	images fusion algorithm
Colors	multiple colors selectable
POWER SOURCE	
Battery	Rechargeable batter
working hours	＞3 hours
Adapter	DC14.8V 15.4W
ENVIRONMENTAL	
Storage and Operation Temp	-20℃ — +55℃
PHYICAL PARAMETERS	
Dimensions L*W*H	218 * 196 * 104 mm
Weight	2.9kg

ZH580-UAV-S

Drone Carried Multi-spectral Camera

ZH580-UAV-S is a drone carried multi-spectral imaging system with high integration of UV, IR, visible & laser, which has characteristics of integrated design, lightweight, multi-spectral and quick-handling. Developed based on the PSDK platform, through the high-precision special pan-tilt quickly docking M300RTK and other mainstream drones. Images were fused by high-precision image registration to obtain the exact location of corona discharge, temperature anomaly, missing damage and other defects.

ZH580-UAV-S is very suitable for UAVS transmission and distribution lines, railway lines, substations, forest fire prevention, operation and maintenance services and other industries.

Standard Pan-Tilt

High-integration

Individual Operation

Joint Diagnosis

Quality Service

Features

- Standard Pan-Tilt & Excellent shock-resistance
- High integration of UV, IR, VIS & Laser
- Individual Operation & Quality and Efficiency
- 4 in 1 Multi-spectral joint diagnosis
- Secured equipment & Good after-sale service
- Drone pilot and UV photography certificate

ZH580-UAV-S Technical Specifications

UV properties	
Spectral Range	240~280 nm
Discharge Sensitivity	1Pc @10 m
RIV Sensitivity	3.6 dBμV(RIV) @ 1 MHz@10 m
UV Sensitivity	3.0×10^{-18} watt/cm^2
FOV	20° ×11.2°
Gain	0-100%
VIS properties	
FOV	9°-52°
Sensitivity	0.1 Lux
Sensor size	20*30 mm
Digital zoom	10 x digital zoom
Display and output	
Display Mode	UV、IR、VIS、UV +VIS、UV+ IR、UV+ IR+VIS
Overlay Accuracy	≤ 1mrad
Display Control	UAV flight control
Resolution	1280×720
Threshold Alarm	Support photon number, temperature reading settings
Image	JPG & RAW
Video	MP4/H.264
Corona Colors	Red, white, blue, yellow, cyan, green, magenta
Status Information	Mode、Gain、Counting、Color、Temperature、Alarm

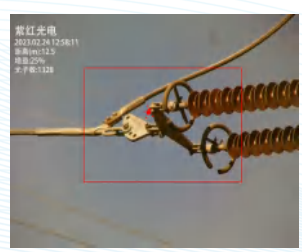
IR properties	
Band	8-14μm
Temp Range	-20 ℃ —+550 ℃
Pixel Size	12μm
FOV	46° ×37°
Focus	Fixed Focus
Digital Zoom	1-4 x
Physical	
Dimension	118×83×58 mm
Weight	550g（without pan-tilt）；900g（with pan-tilt）
Protection Class	IP54
Accessories	Pan-tilt+Mainframe/64G card/Micro SD/Manual/Carrying case
Drone（Optional）	
Dimension	Unfold 810×670×430 mm Fold430×420×430 mm
Weight	3.6 kg、6.3 kg(With two batteries)
Maximum Load	2.7 kg
Flight Altitude	5000 m
Wind Speed	15 m/s
Flight Time	55 min
IP Rating	IP45
Operation Temp	-20℃-+55℃
Humidity	≤ 90%RH

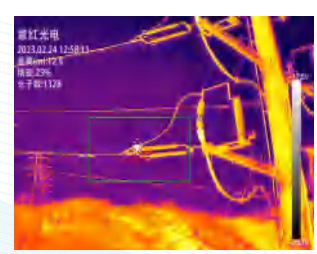
◆ Precise Pan-Tilt

Precision aerial Pan-Tilt, excellent shock resistance, stability and adaptability, can be quickly loaded and unloaded within 2 minutes on site.

◆ Joint Diagnosis

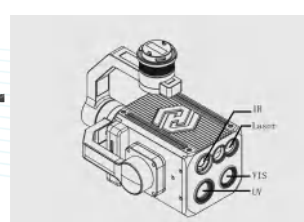
Multi-spectral imaging technology combined, improving the diagnostic accuracy and detection efficiency, reduce the false alarm and miss alarm rate.





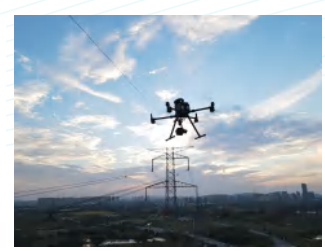
◆ Highly Integrated

High sensitivity UV movement, IR movement, high-definition VIS camera and laser ranger are highly integrated, one machine multi-capability.



◆ Quality Service

Mavic 3 drone is the options for end users to follow the application scene in the whole process, so as to realize worry-free detection process.



UVIRSYS
MAKE INVISIBILITY VISIBLE

ZH580-AIBO

Robotic UV Imaging System

ZH580-AIBO is a robot dog equipped with a multi-spectral imager for power inspection. The instrument integrates UV, IR, HD VIS light and laser rangefinder, which can carry out inspection tests of corona, temperature and visible light meter on the charged equipment. ZH580-AIBO combined with intelligent inspection and self-management system. With path planning function, according to the task arrangement of independent inspection and real-time sensing data back to the management platform for identification, diagnosis, solve the traditional inspection of poor reliability, low operation and maintenance efficiency and other problems.

Multi-Spectrum Navigation Alarm Platform Network

Features

Multi-spectral Instrument

- High sensitivity UV detector
- High accuracy fusion, support 4 x fusion zoom test
- 1280×720 UV fusion HD video stream
- 640×480 auto-focus of infrared camera
- 1920 x 1080 visible, 30x optical zoom, 18x digital zoom
- 40m TOF laser distance measurement
- Threshold alarm, automatic capture
- 2.4G / 4G

Robot Dog

- SLAM algorithm for 3D radar, create terrain contour maps
- Multiple positioning methods for visual management
- Multiple open source external interfaces and card slots
- Strong environmental adaptability, air-cooling system
- Lidar location building for target following
- Adapts to 20 cm high steps and 35 degree steep slopes
- Resistance to external disturbance of balance control
- IP68 with high sensitivity dynamic obstacle avoidance system

ZH580-AIBO Specifications

UV Channel	
Wavelength range	240~280nm
UV Sensitivity	2×10^{-18}watt/cm^2
Discharge Sensitivity	1Pc@10m
RIV Sensitivity	3.6dBμV(RIV)@1MHz@10m
F.O.V.	21.5°×12.5°
Focus	AUTO
Distance	1.5m-∞
Pixel	1280×720
Photon Countings	MIN/SEC
VIS Channel	
Focus	AUTO1.5m-∞
Sensitivity	0.1 Lux
Optical Zoom	×30
Digital Zoom	×20
Resolution	1920×1080
Signal-to-noise ratio	52 dB
Dynamic detection	Supported
Control interface	RS-485/232、Net Gape
Robot	
Travel speed	1m/s
Wading capacity	⩽ 100mm
Obstacle clearing ability	50mm
Climbing ability	⩾ 15°
Navigation and communication	
Navigation	Lidar navigation
Accuracy	±10 mm
Wireless COMM.	2.4 GHz High frequency radio station
COMM. ability	20 Mbps，1000 m
Intranet transmission	Mobile 4G private network

IRChannel	
F.O.V.	32.9°×26.6°
Type	UFPA
Pixel	640×512
Spatial resolution	0.28 mard
Wavelength range	7～14.5 μm
Temp range	-20°C～+550°C
Temp accuracy	±2°C /±2%
Heat sensitivity	50mk@30°C
Foucs	Auto、Electric
PTZ	
Horizontal range	0°～360°Continuous rotation
Horizontal velocity	0.01°～60° /S
Vertical range	-10°～+90°
Vertical velocity	0.01° ～ 37.1° /S
Preset bit	⩾ 254
Lens control	Supported. Configure the lens preset interface
Supply voltage	DC12V （Plug）
Control interface	Net Gape
Robot Dog	
Max Speed	4.95m/s
Endurance mileage	15km
Endurance time	2-4h
Climbing ability	⩾ 30°
Physical characteristics	
Work Temp	-20°C～+60°C
Power	AC 220 V，Frequency 50 Hz
Collision avoidance	Support anti-collision and fall
Class of protection	IP54
Standard configuration	Host, communication device, software system, factory data

Speciations are subject to changes without notice.

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