

Airborne Multispectral Imager

DL2900

Features

- Integrated fusion of UV, IR, and Vis light imaging
- Airborne multispectral imaging
- Automatic IR focusing with secondary thermal map analysis
- Image fusion from different sensors
- Sunlight interference resistance
- Compact and lightweight
- Long-distance, telephoto imaging
- Ergonomic design for ease of operation
- Multi-functional capabilities through sensor integration
- High reliability and stability
- High resolution with threshold alarms

Description

The DL2900 airborne multispectral imager is an advanced inspection device that integrates ultraviolet (UV) imaging technology and infrared (IR) thermal imaging technology. This cutting-edge multispectral imaging device not only captures and analyzes UV signals generated during equipment discharges for electrical fault detection, but also utilizes an IR detector to obtain the infrared radiation energy distribution of the target, reflecting the surface temperature distribution of the object.

The DL2900 imager has extensive applications in industries such as power, rail transportation, and industrial manufacturing. It enables operators to quickly identify fault points, assess discharge severity, predict equipment lifespan, and develop more rational maintenance plans. Its ability to provide precise thermal imaging and discharge detection makes it invaluable for predictive maintenance and remote inspection.

Application

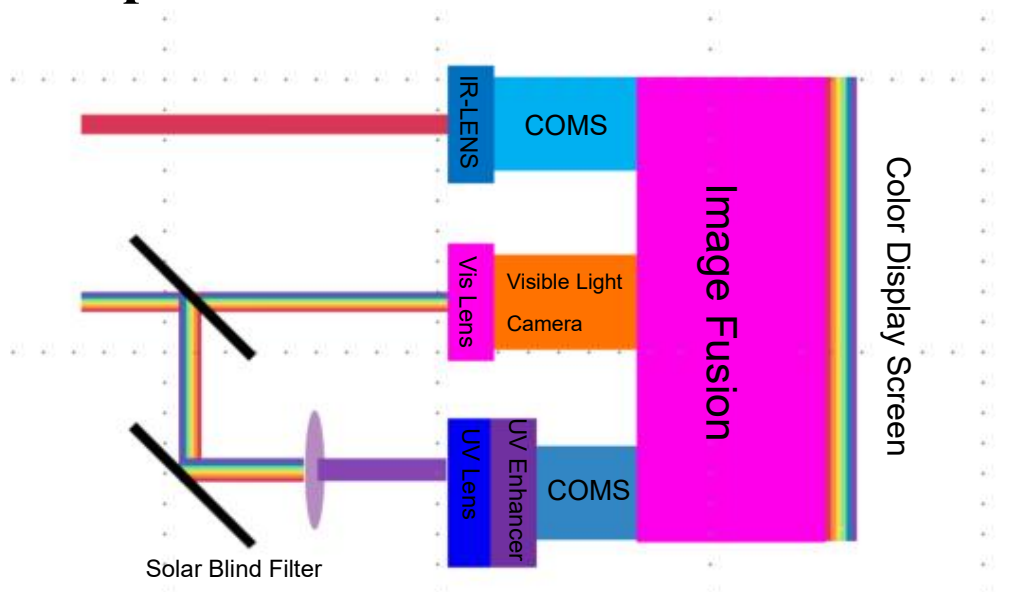
The airborne multispectral imager has a wide range of applications, covering almost all areas that require discharge detection, maintenance, and monitoring of electrical equipment:

- Power transmission line inspection
- Electrical equipment inspection
- High-voltage substations
- High-voltage research facilities
- High-voltage electrical component inspection
- Power equipment condition monitoring
- Fault diagnosis and prevention





1. Principle



The DL2900 airborne multispectral imager utilizes an optical system to split visible and UV light. UV photons generated during corona discharge are detected by a UV detector. These UV photons are converted into electrical signals, which are processed to create a visible-UV composite image on the display, allowing precise detection of discharge location and intensity.

The IR imaging section uses an IR detector to capture the infrared radiation energy distribution of the target, converting it into electrical signals to produce an IR thermal image. This thermal image corresponds to the object's surface temperature distribution and is crucial for real-time monitoring of surface temperature changes, aiding early detection of potential issues in power supply equipment.

Visible light detection identifies defects such as damage or changes in image features. The integration of these three technologies complements and validates each other, enabling multi-technology joint diagnostics. This improves diagnostic accuracy and detection efficiency while reducing false alarms and missed detections.

2. Characteristics

Tri-band Fusion

Six modes of fusion, including UV (ultraviolet), IR (infrared), VIS (visible light), UV+VIS, IR+VIS, and UV+IR+VIS, providing clear images and video streams without trailing.

Multi-frame Counting

Five photon counting frames are available, enabling multi-frame counting and quantitative analysis of different corona discharge regions on the same equipment.

Threshold Alarms

Set different photon count and temperature anomaly alarm thresholds based on the testing environment, ensuring that defects like discharge and temperature anomalies are detected during on-site testing.

Secondary Analysis

The infrared function supports point, line, and area temperature measurement, with settings for emissivity, pseudo-color, and environmental parameters. RAW images can undergo secondary analysis via software.

3. Parameter

Application Field	Power, Electrified Railways	
UV Channel	Type	Single video (color adjustable)
	UV Sensitivity	2.0×10^{-18} watt/cm ²
	Discharge Sensitivity	1pc@10m
	Wavelength Range	240nm-280nm
	Field of View	(D)FOV=8.8°(D=18mm)
	Focus	Automatic
	Focus Range	3m~∞
Visible Light Channel	Type	Color video (color adjustable)
	Visible Light Sensitivity	0.1 Lux
	Focus	Automatic
	Focus Range	3m~∞
	Zoom	10x optical zoom, 12x digital zoom
IR Channel	Band Range	8-14μm
	IR Pixels	640*512
	Temperature Accuracy	±2°C/±2%

	Focusing Method	Automatic
	Field of View	8.8°*7.7°
	Measurement Range	-20℃ — +600℃
Storage and Playback	Image Format	JPG format
	Video Format	MP4 format
	Photo and Video	One-touch photo and video recording
	Playback Function	Supports image and video playback
Interfaces	Power Interface	Yes
	Video Output	CVBS/HDMI
	Ethernet Port	Yes
Environmental Parameters	Operating Temperature	-10℃ ~ +50℃
	Storage Temperature	-25℃ ~ +60℃
	Humidity	≤95% (non-condensing)