OPTOSKY Spectroscopy Solutions

# Datasheet

# Dual-lens 6-band Multispectral Imager

# ATH1620

## Features

- 6 spectral bands: 450 nm, 510 nm, 550 nm, 660 nm, 720 nm, 840 nm
- Dual detectors, dual lenses
- Low cost, low power consumption
- Onboard real-time spectral inversion, video output
- Can be adapted to multiple models of drones
- Compact design and light weight (100g)
- Wide Applications: agriculture, forestry, surveying and mapping, etc
- Full channel fastest 0.5s photo interval
- GPS module, gyroscope module

## Application

- Scientific research & Life Science Research： Climate research, ecology, archeology and remote sensing
- Agriculture & Forest Monitoring：Crop monitoring, growth assessment, pest and disease detection
- Irrigation management, land use and planning
- water quality in River & illegal discharge & Water stress
- Geology and mineral resource：Oil、Mining、Energy
- Environmental science：Natural disasters Monitoring and assessing the impact
- Pubilic Safety: Emergency rescue

## Description

The ATH1620 6-band multispectral imager features dual lenses and dual detectors, with six spectral bands: 450nm, 510nm, 550nm, 660nm, 720nm, and 840nm. Users can freely select each channel according to their application needs, performing calculations to obtain the required spectral information. This flexibility makes the camera suitable for a variety of agricultural tasks, environmental monitoring, and resource management.

The ATH1620's high-speed acquisition capabilities allow it to capture details of fast-moving targets and dynamic processes. Optimized data processing algorithms ensure high image quality and accuracy. Whether used for crop monitoring, soil analysis, or vegetation coverage assessment, the ATH1620 provides precise spectral information and rich data support, meeting the needs of various industry applications such as agricultural monitoring, ecological conservation, emergency search and rescue, and camouflage detection.

# 1.Parameter

| | | |
|---|---|---|
| Spectral Performance | Spectral Channel | 450nm@30nm，510nm@30nm，555nm@27nm，660nm@22nm，720nm@10nm，840nm@30nm |
| | Spectral Width | Multispectral：109m×82m@h120m； |
| | Ground Resolution | Multispectral：5.28cm@h120m； |
| | Bits | Multispectral：12bit； |
| Imaging Lens | Shutter | Multispectral：Global； |
| | Camera Target | Multispectral: 1/1.8"; |
| | Effective Pixels | Multispectral：1.3Mpx； |
| | FOV | Multispectral: 48.8°×37.5°; |
| | Optical Window | Sapphire optical glass window |
| Electrical Performance | Dimension | Φ5.0×40 mm |
| | Weight | ≤100g |
| | Power | DC，9V~24V |
| | Power Consumption | 5W |
| | Interface | Drone interface (Type-C or DC), USB Device |
| | Image format | Multispectral: 16-bit raw TIFF & 8-bit reflectance JPEG; RGB: 8-bit JPEG |
| | Storage medium | SD card |
| | Shooting trigger | Overlap trigger, timed trigger |
| | Shooting frequency | Photo mode: 1Hz; Video mode: 20Hz |
| | Working temperature | -10°C to +50°C (with relative wind speed ≥1m/s) |
| | Working humidity | RH ≤ 85% (non-condensing) |

# 2.Applications

Multispectral cameras have wide-ranging applications across various fields. Here are some examples:

1) **Agriculture and Crop Management**: Multispectral cameras are used for crop monitoring, growth assessment, pest and disease detection, and irrigation management. By capturing different spectral bands of light reflected by plants, these cameras can

assess vegetation health, nutritional status, and water needs, optimizing crop growth and yield.

2) **Environmental Monitoring**: These cameras are utilized to monitor and assess environmental pollution, soil quality, water quality, and vegetation cover. Analyzing images from different spectral bands helps monitor air pollution, water eutrophication, and changes in forest cover, aiding in environmental protection and sustainable development.
3) **Land Use and Planning**: Multispectral cameras provide high-resolution images of the earth's surface for land use planning, urban planning, and land resource management. Access to land use information, land type classification, and surface change monitoring supports decision-makers in making accurate land management and planning decisions.
4) **Water Resource Management**: Cameras can monitor the water quality, storage capacity, and hydrodynamic characteristics of reservoirs, lakes, and rivers. By capturing the optical properties and colors of water bodies, these cameras provide crucial data for water resource management, such as monitoring water quality changes, algal blooms, and flow rates.
5) **Natural Disaster Monitoring**: Multispectral cameras can be employed for emergency rescue operations and to assess the impact and damage of natural disasters like floods, earthquakes, and wildfires. Capturing image data of disaster areas aids in disaster assessment, post-disaster reconstruction planning, and emergency response.
6) **Resource Exploration**: Cameras are used in geological exploration, mineral resource prospecting, and energy surveys. Analyzing surface images and spectral characteristics helps identify underground mineral resources, geological structures, and energy potential.
7) **Camouflage Detection**: Short-wave infrared has the ability to image through fog and smoke and is highly sensitive to spectral reflections from different materials. Combined with other remote sensing bands like multispectral and long-wave infrared, it can identify camouflaged or sensitive targets effectively.