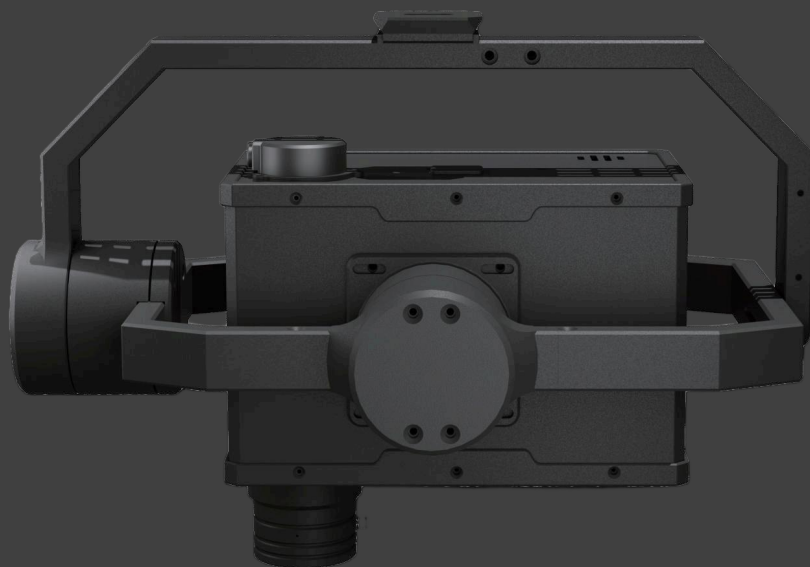


RU-10-L UAV Hyperspectral Imaging System

400–1000nm Visible / Near-Infrared VNIR Hyperspectral Camera

Spectrum–image fusion for qualitative, quantitative and geo-located detection of any target



01

HIGH-FIDELITY SPECTRA

Better than 2.8nm resolution with 2nm sampling across 400–1000nm; 300 bands reveal subtle spectral differences.

02

LIGHTWEIGHT INTEGRATION

Camera, standard 16mm lens and 2-axis gimbal together under 2.7kg; airborne within 10 minutes of arrival.

03

REAL-TIME INSIGHT

Hyperspectral data cube and 15MP HD image displayed in real time on the onboard i7 acquisition system.

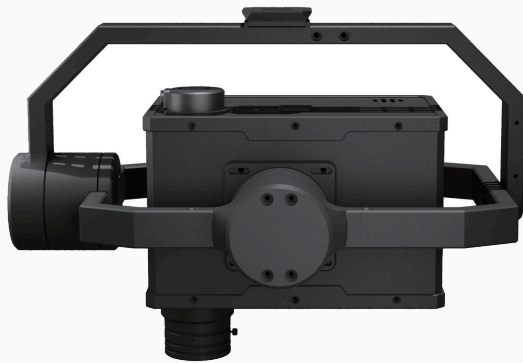
04

PRECISE GEOLOCATION

10cm GPS positioning with a built-in geometric-correction module; every pixel geo-referenced without post-processing.

KEY ADVANTAGES

- Outstanding optics: better than 2.8nm / 300 bands / 15.6° FOV
- Built-in geometric correction module with real-time geo-coordinate calculation
- Remote control of the instrument and parameters via UAV remote controller
- 2-axis high-stability gimbal — ideal images without post-processing
- Deep UAV integration: shared power supply, video link and GPS
- Ambient-light correction component — immune to sunlight variation
- 20+ built-in vegetation indices: NDVI / NDWI / RVI / PRI
- Push-broom imaging with automated route planning and flight execution
- 15MP HD camera plus spectral angle mapper for precise identification
- Real-time display of spectral and image data during flight



VNIR SPECTROSCOPIC MODULE

400–1000nm range with better than 2.8nm resolution and 300 bands (4×4 binning); 25μm slit for high optical throughput.

2-AXIS HIGH-STABILITY GIMBAL

Active stabilization keeps the line of sight steady throughout the flight — ideal images without post-processing.

15MP HD VISIBLE CAMERA

Co-boresighted with the hyperspectral channel; built-in spectral angle mapper precisely identifies spectral differences.

AMBIENT-LIGHT CORRECTION

Real-time solar irradiance monitoring with automatic compensation for consistent data under changing light.

ONBOARD CONTROL & STORAGE

i7 CPU, 16GB RAM and 1TB HDD support long missions; spectral and image data displayed in real time.

CORE TECHNOLOGIES

Engineered for reliable, industry-ready remote sensing

01

VNIR SPECTROSCOPIC SYSTEM

- 400–1000nm VNIR spectral coverage
- Better than 2.8nm spectral resolution
- 2nm sampling interval
- 300 spectral bands (4×4 binning)
- F/2.4 high-throughput optics

02

HIGH-SPEED IMAGING

- 1920×1200 CMOS detector, 12-bit
- 5.86μm × 5.86μm native pixels
- 120fps maximum frame rate
- 480 effective spatial pixels (4×)
- USB3.0 high-speed interface

03

INTEGRATED UAV SYSTEM

- 2-axis high-stability self-stabilizing gimbal
- POS with 10cm GPS positioning accuracy
- i7 CPU / 16GB RAM / 1TB HDD onboard
- Remote control via UAV remote controller
- Real-time spectral & image display

PERFORMANCE PROOF



Field-Ready Water & Vegetation Monitoring

Purpose-built for small-UAV deployment: the complete system — camera, standard 16mm lens and 2-axis gimbal — weighs under 2.7kg. Synchronized spectrum / image / GPS acquisition with 10cm positioning accuracy delivers geo-referenced data cubes in real time, while 20+ built-in vegetation indices (NDVI / NDWI / RVI / PRI) support immediate field interpretation of water and vegetation conditions.

Conditions: RU-10-L · 15.6° FOV · 0.71mrad IFOV · 120fps push-broom · 16mm standard lens

APPLICATION AREAS

WATER QUALITY

Chl-a / COD / turbidity monitoring of inland waters

SMART AGRICULTURE

NDVI / RVI / PRI and 20+ vegetation indices

FORESTRY & ECOLOGY

Vegetation health and species classification

TARGET RECOGNITION

Spectral angle mapping for precise identification

ANTI-CAMOUFLAGE

Spectral signatures reveal concealed targets

WATERSHED RS

Spectrum–image fused environmental surveys

OPTICAL SYSTEM

Model	RU-10-L UAV Hyperspectral Imaging System
Spectral Range	400–1000nm
Spectral Resolution	Better than 2.8nm
Sampling Interval	2nm
F-number	F/2.4
Number of Spectral Bands	300 (4×)
Field of View (FOV)	15.6° @ f=35mm
Instantaneous FOV (IFOV)	0.71mrad @ f=35mm
Maximum Frame Rate	120fps
Hyperspectral Lens	Standard 16mm

DETECTOR

Detector	CMOS
Interface	USB3.0
Target Size	1/1.2", 11.3mm × 7.1mm
Native Resolution	1920 × 1200
Native Pixel Size	5.86μm × 5.86μm
Effective Bit Depth	12bits
Slit Width	25μm
Recommended Pixel Binning	4×4
Effective Spatial Pixels	480 (4×)

PERFORMANCE HIGHLIGHTS

400–1000nm

Full VNIR spectral coverage

2.8nm

Spectral resolution

300 Bands

Spectral bands (4×4 binning)

120fps

Maximum frame rate

<2.7kg

Camera, lens and gimbal combined

IMAGING SYSTEM

HD Camera	15MP
Self-stabilizing Gimbal	2-axis high-stability
GPS Positioning Accuracy	10cm (POS system)

ACQUISITION & CONTROL

Onboard System	CPU i7, RAM 16GB, HDD 1TB
Remote Control	Via UAV remote controller
Real-Time Monitoring	Real-time display of spectral & image data

OVERALL PARAMETERS

Input Voltage	13.6V
Operating Current	Peak 3A
Detector Power Supply	External 12–24 VDC, 3W
Weight	< 2.7kg (main unit, lens & gimbal)
Operating Temperature	0–40°C, 20–80% RH non-condensing

RU-30-L UAV Hyperspectral Imaging System

900–1700nm Near-Infrared NIR Hyperspectral Camera

Compact, lightweight, high spectral resolution NIR imaging from the air



01

HIGH SPECTRAL RESOLUTION

Better than 6nm resolution with 1.7nm sampling across 900–1700nm; 400 bands resolve detailed NIR features.

02

COMPACT & LIGHTWEIGHT

Main unit, standard 16mm lens and 2-axis gimbal together under 2.7kg (285×180×179mm) for UAV deployment.

03

REAL-TIME SPECTRAL IMAGING

Spectral-imaging data displayed in real time on the onboard i7 control & acquisition system.

04

PRECISE & STABLE

10cm GPS positioning (POS) with a 2-axis high-stability self-stabilizing gimbal for geo-referenced data.

KEY ADVANTAGES

- Self-developed lightweight 900–1700nm NIR hyperspectral module
- Better than 6nm spectral resolution, 1.7nm sampling interval
- 400 spectral bands / 22.6° wide field of view
- 125fps maximum frame rate
- TE-cooled InGaAs detector, 12-bit depth
- 15.0MP HD camera integrated in the system
- 2-axis high-stability self-stabilizing gimbal
- Onboard i7 CPU, 16GB RAM, 1TB HDD
- Remote intelligent control via UAV remote controller
- Real-time display of spectral-imaging data during flight



NIR SPECTROSCOPIC MODULE

Self-developed lightweight 900–1700nm module; better than 6nm resolution with 1.7nm sampling; 400 spectral bands.

STANDARD 16MM DEDICATED LENS

F/2.0 optics with 22.6° FOV and 0.625mrad IFOV for fine ground resolution.

2-AXIS HIGH-STABILITY GIMBAL

Self-stabilizing platform keeps the sensor steady in flight; the complete system weighs under 2.7kg.

TE-COOLED INGAAS DETECTOR

1280×1024 native resolution, 5μm pixels and 12-bit depth for sensitive NIR detection.

ONBOARD CONTROL & ACQUISITION

i7 CPU, 16GB RAM and 1TB HDD; remote intelligent control via the UAV remote controller.

CORE TECHNOLOGIES

Engineered for reliable, industry-ready remote sensing

01

NIR SPECTROSCOPIC SYSTEM

- 900–1700nm NIR spectral coverage
- Better than 6nm spectral resolution
- 1.7nm sampling interval
- 400 spectral bands (2×2 binning)
- F/2.0 high-throughput optics

02

COOLED INGAAS DETECTION

- TE-cooled InGaAs detector
- 1280×1024 native resolution
- 5μm × 5μm pixels, 12-bit depth
- 640 effective spatial pixels (2×2)
- 125fps maximum frame rate

03

INTEGRATED UAV SYSTEM

- 2-axis high-stability self-stabilizing gimbal
- 10cm GPS positioning accuracy (POS)
- i7 CPU / 16GB RAM / 1TB HDD onboard
- Remote intelligent control via UAV remote controller
- Real-time spectral-imaging display

PERFORMANCE PROOF

Compact NIR Payload — Field-Ready by Design

The self-developed lightweight 900–1700nm module delivers 400 spectral bands at better than 6nm resolution, while the complete system — main unit, standard 16mm dedicated lens and 2-axis gimbal — weighs no more than 2.7kg (285 × 180 × 179mm). The onboard i7 control & acquisition system with 1TB HDD displays spectral-imaging data in real time, and the UAV remote controller provides remote intelligent control throughout the mission — ready for smart agriculture, forestry fire prevention, fog-penetrating observation and camouflage identification.

Conditions: RU-30-L · 22.6° FOV · 0.625mrad IFOV · 125fps maximum frame rate · standard 16mm dedicated lens

APPLICATION AREAS

SMART AGRICULTURE

Crop growth monitoring and precision farming

FORESTRY & FIRE

Forest health and fire-prevention patrol

FOG-PENETRATING

Observation through haze and fog conditions

CAMOUFLAGE ID

Spectral identification of camouflaged targets

REAL-TIME IMAGING

Real-time display of spectral-imaging data

REMOTE UAV OPS

Remote intelligent control via UAV controller

OPTICAL SYSTEM

Model	RU-30-L UAV Hyperspectral Imaging System
Spectral Range	900–1700nm
Spectral Resolution	Better than 6nm
Sampling Interval	1.7nm
F-number	F/2.0
Number of Spectral Bands	400
Field of View (FOV)	22.6° @ f=16mm
Instantaneous FOV (IFOV)	0.625mrad @ f=16mm
Maximum Frame Rate	125fps
Hyperspectral Lens	Standard 16mm dedicated

DETECTOR

Detector	InGaAs (TE-Cooled)
Interface	USB 3.0
Power Supply	12V DC, <2.1W
Target Size	6.4mm × 5.12mm
Native Resolution	1280 × 1024
Native Pixel Size	5μm × 5μm
Effective Bit Depth	12bit
Slit Width	20μm
Recommended Pixel Binning	2×2
Effective Spatial Pixels	640

PERFORMANCE HIGHLIGHTS

900–1700nm

Near-infrared spectral coverage

6nm

Spectral resolution

400 Bands

Number of spectral bands

125fps

Maximum frame rate

≤2.7kg

Main unit, lens & gimbal combined

IMAGING SYSTEM

HD Camera	15.0MP
Self-stabilizing Gimbal	2-axis high-stability
GPS Positioning Accuracy	10cm (POS system)

ACQUISITION & CONTROL

Onboard System	CPU i7, RAM 16GB, HDD 1TB
Remote Control	Remote intelligent control via UAV remote controller
Real-Time Monitoring	Real-time display of spectral-imaging data

COMPLETE SYSTEM

Input Voltage	24V
Operating Current	Peak 3A
Weight	≤ 2.7kg (main unit, lens & gimbal)
Operating Temperature	0–40°C, 20–80% RH (no condensation)

RU-70-U Full Spectrum Hyperspectral Camera

400–2500nm VNIR / SWIR UAV-Borne Hyperspectral Imaging System

Spectrum–image fusion for qualitative, quantitative and geo-located detection of any target



01

FULL-SPECTRUM COVERAGE

400–2500nm VNIR + SWIR dual bands seamlessly merged — complete spectral signatures captured in a single flight.

02

HIGH PERFORMANCE

Better than 2.8nm spectral resolution, ≥ 640 spectral bands and a 21° wide field of view for precision and efficiency.

03

REAL-TIME INVERSION

Water-quality parameters TN / TP / $\text{NH}_3\text{-N}$ / COD inverted and uploaded to the cloud in real time.

04

LONG-ENDURANCE OPERATION

Built-in 1TB storage supports 8-hour continuous missions; airborne within 10 minutes of arrival.

KEY ADVANTAGES

- Outstanding optics: 8nm-class resolution / 460+ bands / 21° FOV
- Built-in geometric correction module with real-time geo-coordinate calculation
- Remote control of the instrument and parameters via UAV remote controller
- High-precision self-stabilizing gimbal — ideal images without post-processing
- Synchronized acquisition of spectrum, image and GPS data
- Ambient-light correction component — immune to sunlight variation
- 20+ built-in vegetation indices: NDVI / NDWI / RVI / PRI and more
- Push-broom imaging with automated route planning and flight execution
- HD visible camera plus spectral angle mapper for precise identification
- Real-time monitoring of hyperspectral data cube and HD video feed

DUAL-BAND SPECTROSCOPIC MODULE

Transmission grating for VNIR 400–1000nm and SWIR 1000–2500nm; ≥640 merged bands captured in one push-broom scan.

HIGH-PRECISION SELF-STABILIZING GIMBAL

Active attitude compensation keeps the push-broom scan stable throughout the flight — ideal images without post-processing.

HD VISIBLE CAMERA

Co-boresighted with the hyperspectral channel; built-in spectral angle mapper precisely identifies spectral differences.

AMBIENT-LIGHT CORRECTION

Real-time solar irradiance monitoring with automatic compensation for consistent data under changing light.

ONBOARD CONTROL & STORAGE

1TB drive supports 8-hour continuous missions; remote parameter tuning with real-time data transmission.

CORE TECHNOLOGIES

Engineered for reliable, industry-ready remote sensing

01

DUAL-BAND SPECTROSCOPIC SYSTEM

- Transmission-grating dispersion, no moving parts
- VNIR 400–1000nm, resolution better than 2.8nm
- SWIR 1000–2500nm, resolution better than 10nm
- ≥640 merged spectral bands
- F/2.6 (VNIR) / F/2.0 (SWIR) high throughput

02

HIGH-SENSITIVITY DETECTION

- CMOS detector with 12-bit effective depth
- HgCdTe detector with 14-bit effective depth
- Stirling-cycle cooling for low noise
- 5.86μm (VNIR) / 15μm (SWIR) pixels
- USB3.0 / GigE high-speed interfaces

03

INTELLIGENT STABILIZING GIMBAL

- High-precision 3-axis self-stabilization
- Real-time attitude compensation
- Synchronized spectrum / image / GPS acquisition
- Deep UAV integration: power, video link, GPS
- 128fps push-broom for high-speed survey

PERFORMANCE PROOF



Field-Verified Mineral Exploration Survey

Continuous push-broom operation under complex lighting and terrain in an open-pit mine. The full 400–2500nm spectra completely restore mineral spectral characteristics; built-in multi-strip mosaicking rapidly generates maps, and the spectral angle mapper accurately delineates mineralized alteration zones — providing spectrum–image fused evidence for mineral-resource investigation.

Conditions: RU-70-U · 21° FOV · 128fps push-broom · built-in geometric correction · 1TB onboard storage

APPLICATION AREAS

WATER QUALITY

Real-time inversion of
TN / TP / NH₃-N / COD
/ CHLA / DO

SMART AGRICULTURE

NDVI / RVI / PRI and
20+ vegetation indices

MINERAL RESOURCES

Mineral spectral
identification &
alteration-zone
mapping

TARGET RECOGNITION

Spectral angle
mapping for precise
identification

ANTI-CAMOUFLAGE

Spectral signatures
reveal concealed
targets

ECOLOGICAL RS

Spectrum–image fused
ecological remote
sensing

OPTICAL SYSTEM

Model	RU-70-U Full Spectrum Hyperspectral Camera
Spectral Method	Transmission Grating (VNIR / SWIR)
Spectral Range	VNIR 400–1000nm / SWIR 1000–2500nm
Combined Spectral Range	400–2500nm
Spectral Channels	300 (single band) / ≥640 (combined)
Spectral Resolution	Better than 2.8nm (VNIR) / 10nm (SWIR)
F-number	F/2.6 (VNIR) / F/2.0 (SWIR)
Field of View (FOV)	21° @ f=25mm (combined 21°)
Instantaneous FOV (IFOV)	1 mrad @ f=25mm
Frame Rate (Max)	128fps (VNIR) / 100fps (SWIR)

IMAGING & MECHANICAL

Effective Spatial Pixels	1920 (VNIR) / 640 (SWIR)
Combined Spatial Pixels	640
Effective Slit Length	11.3mm (VNIR) / 9.6mm (SWIR)
Slit Width	25μm
Recommended Pixel Binning	1×1
Onboard Storage	Built-in 1TB HDD, 8-hour continuous missions
Stabilization	High-precision self-stabilizing gimbal

PERFORMANCE HIGHLIGHTS

400–2500nm

Full VNIR + SWIR spectrum coverage

≥640 Bands

Combined spectral channels

2.8nm

VNIR spectral resolution

128fps

Maximum push-broom frame rate

8h

1TB onboard storage endurance

DETECTORS

Type	CMOS / HgCdTe (Stirling Cooled)
Interface	USB 3.0 / Gigabit Ethernet
Sensor Size	11.3mm×7.1mm / 9.6mm×7.68mm
Native Pixel Size	5.86μm×5.86μm / 15μm×15μm
Effective Pixel Depth	12bit / 14bit

SOFTWARE & DATA

Vegetation Indices	NDVI / NDWI / RVI / PRI, 20+ built-in
Image Mosaicking	Built-in multi-strip mosaicking
Real-Time Cloud Inversion	TN / TP / NH ₃ -N / CHLA / COD / DO / SS
Geometric Correction	Built-in geometric correction module

ELECTRICAL & ENVIRONMENT

Detector Power Supply	12V DC, 4.3W / 24V DC, 30W
Operating Temperature	0–40°C
Storage Temperature	0–50°C