

HYPER SPECTRAL IMAGING TECHNOLOGY

Field Portable Hyperspectral Imager

RF Series · 400 nm – 1700 nm · VNIR + NIR



The RF Series is a field-portable hyperspectral imaging system designed for outdoor deployment. Built-in battery power eliminates external wiring, while the professional field tripod enables rapid setup and acquisition. Covers 400–1700 nm for agriculture, ecology, urban monitoring, archaeology, geology, and defense.

**Battery Powered
No External Wiring**

Integrated power module for true portable field operation

**Field Tripod
Rapid Deployment**

Quick-setup tripod with 360° panoramic pan-tilt

**Built-in Scan
Auto Speed Match**

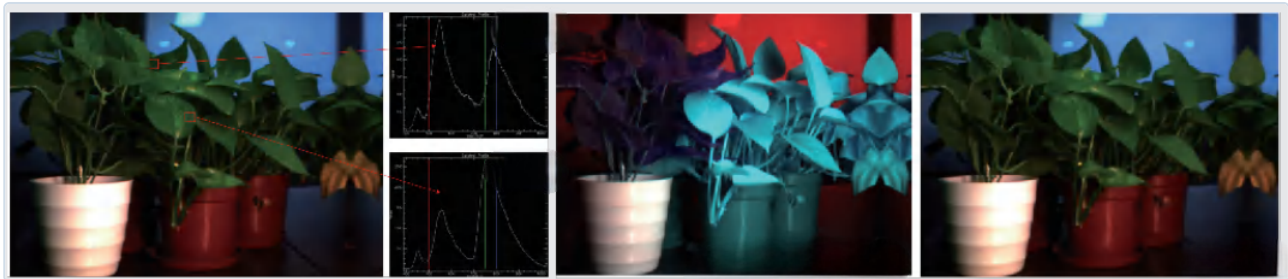
Internal pushbroom scanning with automatic speed synchronization

**400 – 1700 nm
Broad Coverage**

VNIR and NIR bands for vegetation, minerals, and materials

Application Showcase

The RF Series captures spectral signatures from 400 nm to 1700 nm in the field, enabling rapid material identification without laboratory conditions. From crop health to archaeological surveys, deploy anywhere and acquire in minutes.



Real vs. fake plant detection using spectral signature differentiation

Agriculture & Ecology

Crop & Vegetation Monitoring

Pest and disease detection, drought stress assessment, plant species identification, and grassland growth analysis.

Ecological Surveys

Water quality monitoring, atmospheric analysis, and soil nutrient mapping across large areas.

Material Authentication

Spectral differentiation of real and synthetic materials — e.g., live plants vs. plastic replicas.

Urban & Infrastructure

Urban planning support, road surface damage detection, environmental inspection, and landscape monitoring.

Archaeology, Geology & Defense

Archaeological Survey

Site identification, material classification, and pigment analysis on cultural heritage objects.

Geological Exploration

Oil and mineral exploration, mineral mapping, and subsurface composition assessment.

Target Verification

Target confirmation and anti-camouflage identification for security and defense applications.

All-in-One Field Kit

Built-in battery, auto-scan, and rugged design for rapid deployment in any terrain.

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Call us: +86 189-6516-4839 Email: sales@nwspec.com Address: Xiongan Pilot Free Trade Zone, Hebei, China

Technical Specifications

Table 1. VNIR Field Portable Hyperspectral Imager — 400 nm to 1000 nm

Parameter	RF-10-U	RF-10-S	RF-10-X
Product No.	423-341	423-342	423-343
Spectral Range	400 – 1000 nm	400 – 1000 nm	400 – 1000 nm
Spectral Resolution	< 2.8 nm	< 2.8 nm	< 2.8 nm
Spectral Bands	300	300	300
Spectral Sampling	0.5 nm	0.5 nm	2.2 nm
F-Number	F/2.6	F/2.6	F/2.4
Detector	CMOS	CCD / CMOS	CMOS
Detector Interface	GigE / USB3.0	GigE	GigE
Detector Power Supply	12-24V DC, 3W	12V DC	12V DC
Detector Format	1/1.2" (11.3 x 7.1 mm)	1/1.2"	1/1.2"
Detector Resolution	1920 x 1200	1920 x 1200	1920 x 1200
Pixel Size	5.86 μm x 5.86 μm	5.86 μm x 5.86 μm	5.86 μm x 5.86 μm
Effective Bit Depth	12 bit	12 bit	12 bit
Slit Width	25 μm	25 μm	25 μm
Binning Mode	4 x 4	4 x 4	4 x 4
Spatial Pixels	480	480	480
Max Frame Rate	128 fps	128 fps	128 fps
FOV	15.6° @ f=35mm	15.6° @ f=35mm	15.6° (H 50° max)
IFOV	0.71 mrad @ f=35mm	0.71 mrad @ f=35mm	0.71 mrad
Scan Mode	External pan-tilt 360°	Built-in pushbroom	Built-in pushbroom
Focus	Manual	Auto (laser rangefinder)	Auto / Motorized
Display	—	—	7" IPS 1920x1080 2000nit
Onboard Computer	—	—	i7 1.8GHz, 16GB, 1TB
Power Supply	12V DC external	12V DC	DC 24V, 4x3.7V battery
Weight	< 3 kg	< 3 kg	≤ 3 kg
Dimensions	< 250 x 200 x 150 mm	< 250 x 200 x 150 mm	207 x 215 x 114 mm
Operating Temp.	0 – 40 °C	0 – 40 °C	0 – 40 °C
Software	Acquisition + SDK, ENVI Compatible		

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Technical Specifications

Table 2. NIR Field Portable Hyperspectral Imager — 900 nm to 1700 nm

Parameter	RF-30-U	RF-30-S
Product No.	423-344	423-345
Spectral Range	900 – 1700 nm	900 – 1700 nm
Spectral Resolution	< 6 nm	< 6 nm
Spectral Bands	300	512
Spectral Sampling	1.7 nm	1.7 nm
F-Number	F/2.0	F/2.0
Detector	InGaAs (TE-Cooled)	InGaAs
Detector Interface	GigE	CameraLink
Detector Power Supply	12V DC, 8.4W / 16W	12V DC, 8.4W / 16W
Detector Format	9.6 x 7.68 mm	9.6 x 7.68 mm
Detector Resolution	640 x 512	640 x 512
Pixel Size	15 µm x 15 µm	15 µm x 15 µm
Effective Bit Depth	10 / 12 bit	12 / 14 bit
Slit Width	25 µm	30 µm
Binning Mode	4 x 4	1 x 1
Spatial Pixels	480	640
Max Frame Rate	175 fps	175 fps
FOV	14.6° @ f=35mm	15.6° @ f=35mm
IFOV	0.43 mrad @ f=35mm	0.43 mrad @ f=35mm
Scan Mode	External pan-tilt 360°	Built-in pushbroom ≥45°
Focus	Manual	Auto
Pan-Tilt Range	360° horizontal, ±20° vertical	≥45° horizontal
Power Supply	12V DC	12V DC
Weight	< 5 kg	< 5 kg
Operating Temp.	0 – 40 °C	0 – 40 °C
Software	Acquisition + SDK, ENVI Compatible	

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