



ABB MEASUREMENT & ANALYTICS | PRODUCT DESCRIPTION

LEMI 20-SW™ INFRARED MULTISPECTRAL IMAGER

Precision shortwave imaging in a compact package

ABB is a global leader in space optics with over 50 years of experience delivering high-performance remote sensing instruments for government and commercial missions. Our optical payloads fly on flagship programs worldwide and are increasingly adopted across the fast-growing private space sector.

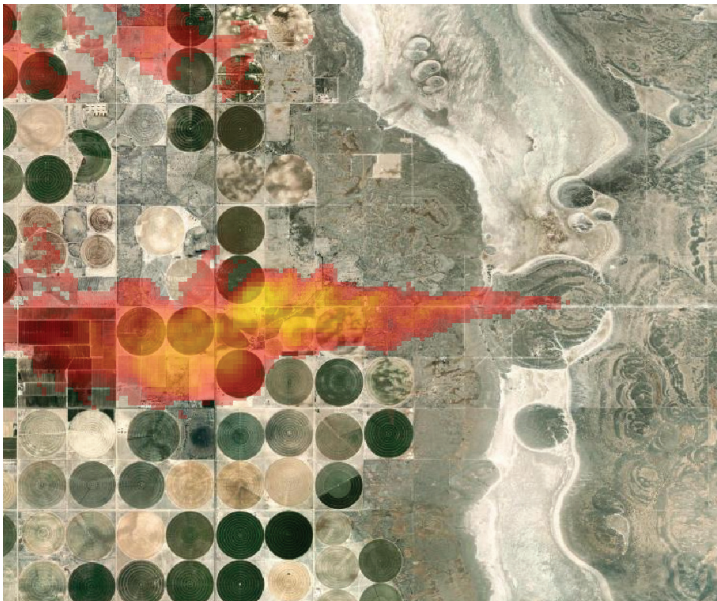
The LEMI 20-SW covers an extended VIS-to-SWIR spectral range (0.6–1.78 μm), enabling visible and shortwave infrared imaging with a single instrument. Designed for compact satellite platforms, it combines scientific-grade optics with a lightweight, thermally tolerant architecture suited to both single-satellite missions and constellations.

The LEMI 20-SW delivers high spectral separation and radiometric stability essential for environmental monitoring, resource exploration and safety applications.

What you can achieve with the LEMI 20-SW

- Reveal material and moisture signatures not visible in VIS/NIR (vegetation water stress, soil moisture, plastics, paints, coatings)
- Penetrate haze and smoke more effectively than VIS/NIR for situational awareness during wildfires and dust events
- Map minerals and lithology for exploration, monitoring and compliance
- Characterize urban surfaces (roofing, pavements, heat-absorbing materials) for resiliency and planning
- Enhance low-light imaging using SWIR sensitivity to airglow and reflected skylight

ABB's imaging solutions help you move from data to informed decisions—faster and with confidence.



Track changes. Reveal materials. Drive decisions.

The LEMI 20-SW enables robust material identification, environmental change detection, and imaging continuity through haze or smoke. It operates in both daytime and nighttime conditions, leveraging reflected sunlight and atmospheric airglow or night sky illumination. With a ~76 m GSD and ~90 km swath, it supports wide-area monitoring across cities, coastlines and agricultural or forested regions.

To support a wide range of operational needs, the LEMI 20-SW is fully customizable within the spectral domain: band centers, bandwidths and band counts can be configured to mission requirements—enabling AI-ready spectral analytics.

What you can monitor with the LEMI 20 SW

- Gas concentrations and emission plumes (see sample image above)
- Image the Earth’s surface through haze, fog and smoke
- Map exposed minerals and land management indicators
- Assess vegetation health, canopy stress and wildfire susceptibility
- Monitor irrigation performance and drought conditions
- Detect watershed pollution and algal blooms
- Monitor maritime and coastal observations: turbidity, sediment plumes and material boundaries

Features

- Tailored SWIR coverage: 600–1780 nm
- Up to 10 spectral bands for application-driven performance
- Compact architecture optimized for small-satellite platforms
- 76 m ground sampling distance @ 500 km
- 90 km swath @ 500 km (pushbroom)
- Low SWaP design enabling flexible host integration

With ABB’s flight-proven imaging heritage, the LEMI 20-SW is ready for missions from single satellites to global constellations.

Specifications

Description	Value
Configuration	Pushbroom
Aperture diameter	20 mm
GSD	152 µrad (76 m @500 km)
System MTF*	10%
Swath	10.3 deg (90 km @500 km)
Frame rate	72 Hz typical
Pixel depth	12 bits
Spectral bands	Up to 10
Spectral range	600 – 1780 nm
Power consumption	5W typical
Mass	1.2 kg
Volume	105 × 120 × 355 mm
Operating temperature	+10 to +25°C
Data interface	Camera Link

*The MTF value reported here corresponds to the lowest MTF among our spectral bands. All other bands show performance levels above the specifications.

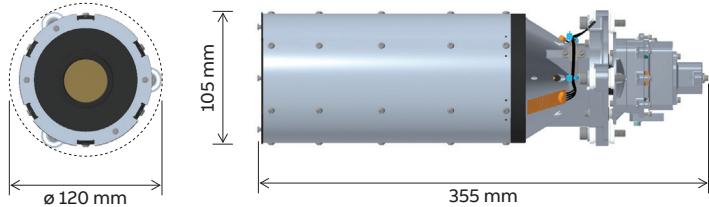


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