

Miratlas announces the world's most compact All-Sky thermal camera.

Pertuis, France, 12nd of June 2024 Miratlas introduces the world's first Long Wave InfraRed (LWIR) All Sky camera relying on a compact fish-eye lens to provide radiometrically calibrated whole sky image.

Up until now, there were no fish-eye lens available capable of provide 360° field of view for thermal cameras. Therefore, to provide all-sky imaging, the thermal camera using would be pointing down towards a large diameter reflector to provide the final image of the whole sky.

This approach resulted in the following limitations, large footprint, about 50x50x80cm and weight 15kg, masking of the image by the camera itself and the primary mirror being more susceptible to image artefacts like rain droplet or birds droppings and to damage.

Working closely with its partners and suppliers, Miratlas today provide the first radiometrically calibrated thermal all-sky camera using a single wide-angle fish-eye lens lifting all these limitations and reducing the footprint by a factor 5,000x and weight by a factor 150x

Here is a summary of the advantages of the new design:

	Old	New
Optical design	lens and mirror	Single lens
Size	47x66x80cm	5x6x7cm
Weight	15kg	100g
Maskless	No, typically 10%	Yes
Scratch resistant hard coating	No	Yes DLC
Components	Two 	One 

The new LWIR camera marks a significant advancement in atmospheric monitoring, it is designed to be seamlessly integrated directly inside the Sky Monitor v4 main unit. Making it simpler, more reliable, and logistically superior by reducing packaging and shipping weight but also easier to handle and deploy on site.

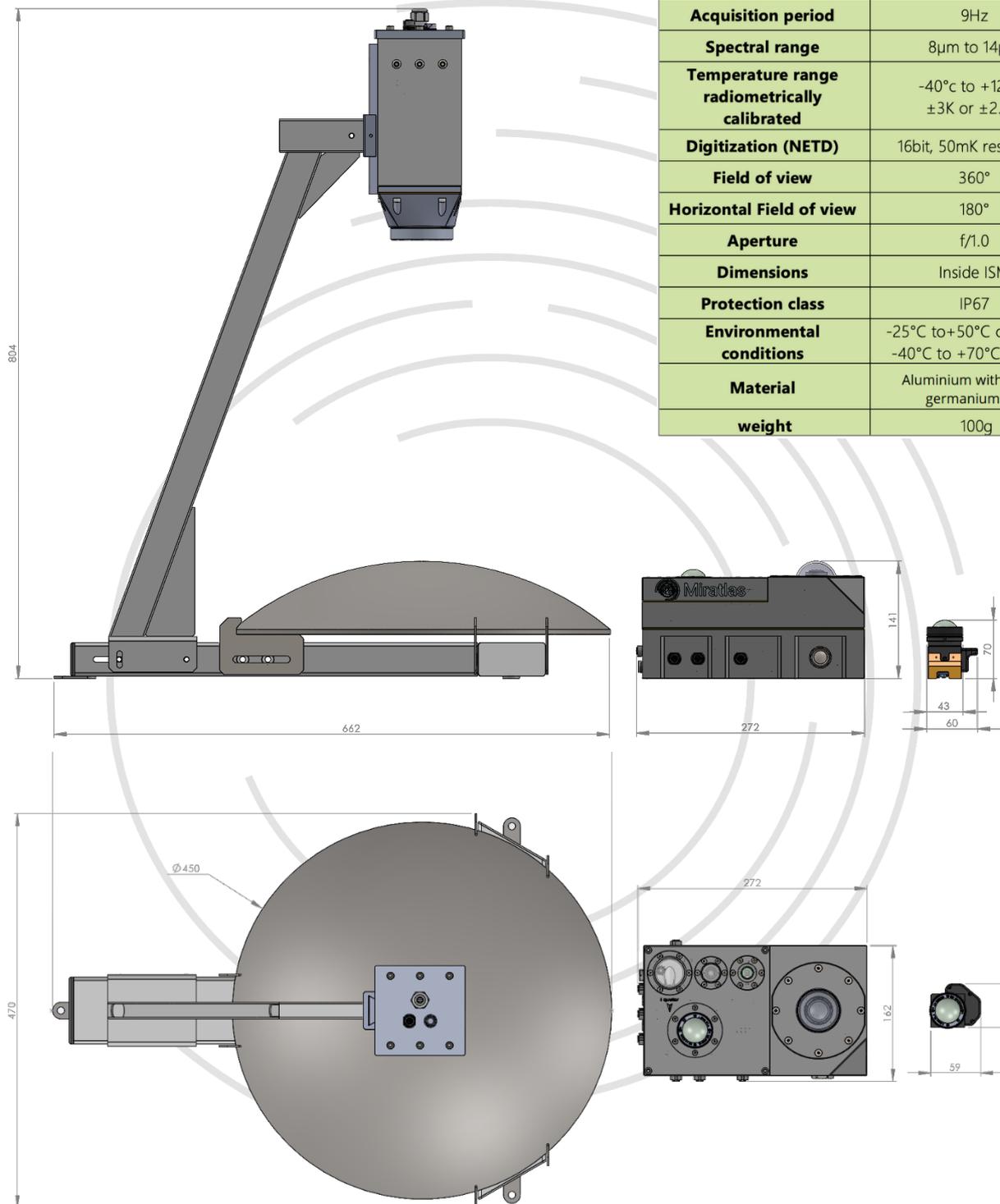
This technological breakthrough will greatly facilitate the characterization of cloud cover for direct to Earth Free Space Optical Communications and Contrail detection.

About Miratlas

Founded in 2018 by [Jean-Edouard Communal](#) and [Frédéric Jabet](#), Miratlas is a deep-tech company which designs, manufactures and sells the Sky Monitor, and provides continuous, real-time, atmospheric characterization and modelling of all the parameters impacting light transmission including cloud cover and turbulence.

Miratlas is enabling the new chapter of laser satellites communication (Fibre in the Sky), by facilitating Direct to Earth Free Space Optical Communications and the extension of the high-capacity terrestrial networks to space.

Technical comparaison



Parameter	Value
Detector	Uncooled microbolometer (Vox)
Resolution	640 x 480 pixels
Acquisition period	9Hz
Spectral range	8 μ m to 14 μ m
Temperature range radiometrically calibrated	-40 $^{\circ}$ c to +120 $^{\circ}$ C \pm 3K or \pm 2.0%
Digitization (NETD)	16bit, 50mK resolution
Field of view	360 $^{\circ}$
Horizontal Field of view	180 $^{\circ}$
Aperture	f/1.0
Dimensions	Inside ISM
Protection class	IP67
Environmental conditions	-25 $^{\circ}$ C to +50 $^{\circ}$ C operating -40 $^{\circ}$ C to +70 $^{\circ}$ C storage
Material	Aluminium with coated germanium lens
weight	100g