Phase One Industrial

Full Frame Aerial Cameras

iXM-RS150F | iXM-RS100F

PHASEONE

INDUSTRIAL

iXM-RS150F Camera at a Glance

Boost Your Productivity with a Wider Aerial Coverage

iXM-RS150F Camera

The iXM-RS150F enables increased productivity for a range of aerial image acquisition projects as it provides wider aerial coverage compared to Phaseone's previous generations.

Backside-Illuminated Sensor

This ultra-high resolution camera is designed with an innovative backside-illuminated sensor to allow perfect image quality, even in low light conditions, resulting in more flying hours a day and more flight days a year.

RS Lenses

The camera is designed to fit one of the eight RS lenses ranging from 32mm to 180mm and the RSM 300mm AF lens, individually calibrated by Phase One. The iXM-RS150F and the iXM-RS100F provide the option to accomplish several projects in a day by adapting the camera with the desired lens.

Facts & Features

- 150MP image size
- Wide aerial coverage
- Available in RGB and Achromatic
- Suitable for Oblique and Lidar systems

Facts & Features

- 3.76µm
- 53.4 x 40 mm Frame Size
- 83 dB dynamic range

Facts & Features

- Central leaf shutter
- Creates DTMs and DSMs for surveying and Orthophotos
- Opening angles specially fitted for oblique systems and LiDAR

Phase One presents the Company's flagship full frame aerial camera with an image size of 150MP.

Leaf RS Shutter

The lenses' integrated leaf RS shutter offers high capture speed for an array of flight conditions.

Facts & Features

- 2fps Capture
- Up to 1/2500s. Exposure Time
- 500K Actuations Capacity

Data Interfaces

Facts & Features

- USB-C and 10G interfaces for quicker and flexible data transfer
- Unlimited cable length with 10G
- Super-fast XQD storage card
- HDMI output with 2K video

150MP/100MP Aerial Systems

iXM-RS150F and iXM-RS100F single frame cameras can be used standalone for photogrammetric work, or as part of a multi-camera array for customized applications. A fully integrated 150MP or 100MP Aerial System is available with either a single frame sensor for RGB imaging or a four-band Aerial System with dual frame sensors for RGB and NIR imaging.

Facts & Features

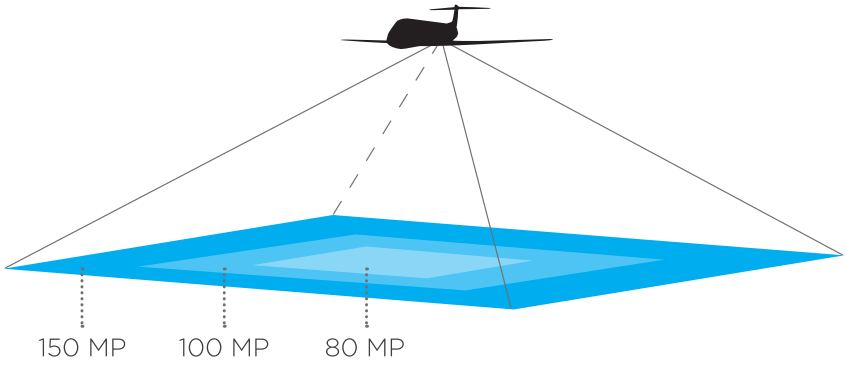
- Fully integrated Phase One Aerial System
- Large image coverage
- Exceptional accuracy and image quality

Note: All facts and features of the the iXM-RS150F and iXM-RS100F RGB are applicable for the iXM-RS150F Achromatic and iXM-RS100F Achromatic

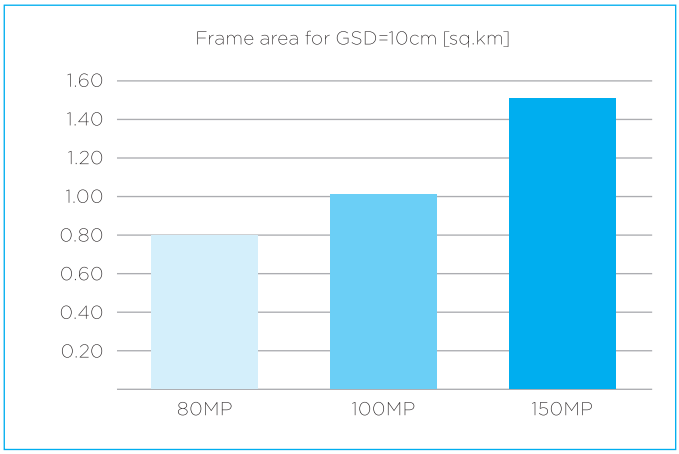
A Wider Aerial Coverage

The iXM-RS150F offers a wider aerial coverage while maintaining high Ground Sample Distance (GSD), provided by its new sensor, specifically designed for mapping applications.

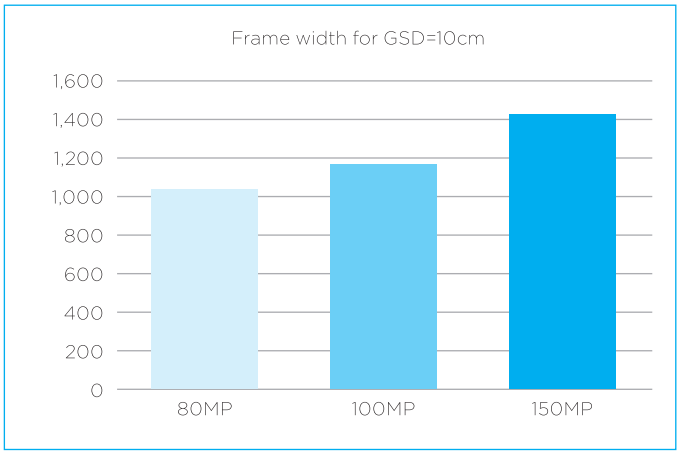
With the iXM-RS150F, the area coverage is increased by 89% compared to the 80MP, and by 26% compared to the 100MP while the width coverage is increased by 38% and 12%, yielding less flight lines and much higher aerial survey productivity.



Area Coverage

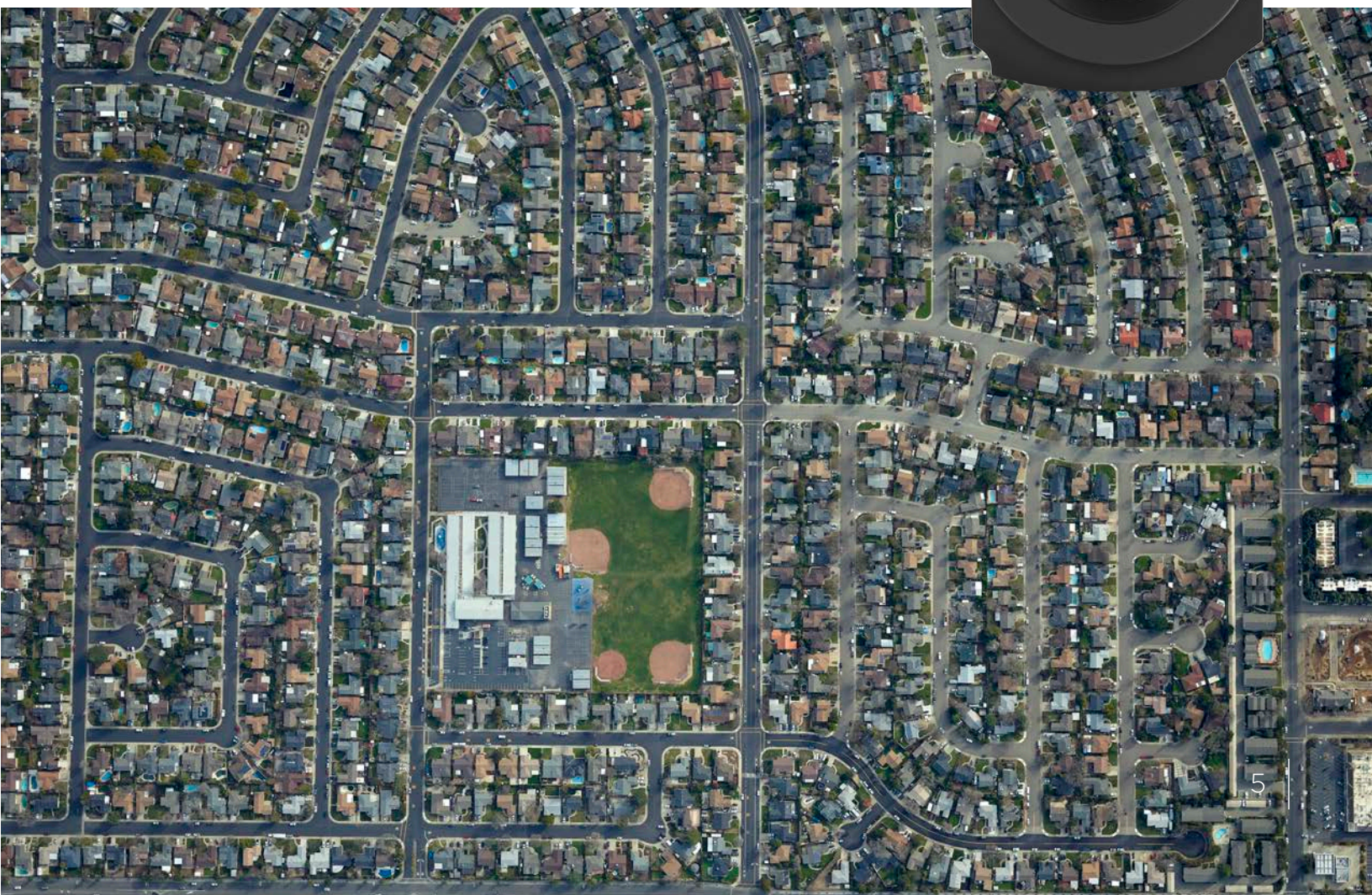


Width Coverage



The RS lens shutter was designed especially for the tough demands of aerial imaging. It uses an innovative direct drive concept with electronic charging that enhances exposure speeds up to 1/2500s, while allowing a record-breaking half a million exposures capacity.

The blades in the RS shutter are manufactured out of specially made carbon fiber material, used in the aerospace industry, they are driven by a linear motor, and controlled in real time for high exposure time precision. The resilience of the RS shutter means faster flying, and allows customers to execute and manage the most demanding aerial photography missions with higher operational efficiency, reliability, and in a cost effective manner.



Flexible Configurations Boost Productivity

The new iXM-RS150F and iXM-RS100F single frame cameras may be used stand-alone for photogrammetric work, or as part of a multi-camera array for customized applications, including high-resolution oblique camera systems and Lidar systems. They can also be easily integrated with other popular flight management systems and GPS/IMU receivers.

Phase One 150MP/100MP Aerial System

Phase One's 150MP Aerial System comprises of either an iXM-RS150F single frame for RGB or a dual frame for RGB & Achromatic (NIR), as well as additional components such as iX Controller, Somag stabilizer (Somag DSM 400 for dual frame/Somag CSM 40 for single frame) Applanix GPS/ IMU unit, iX Plan and iX Flight.

Characteristics:

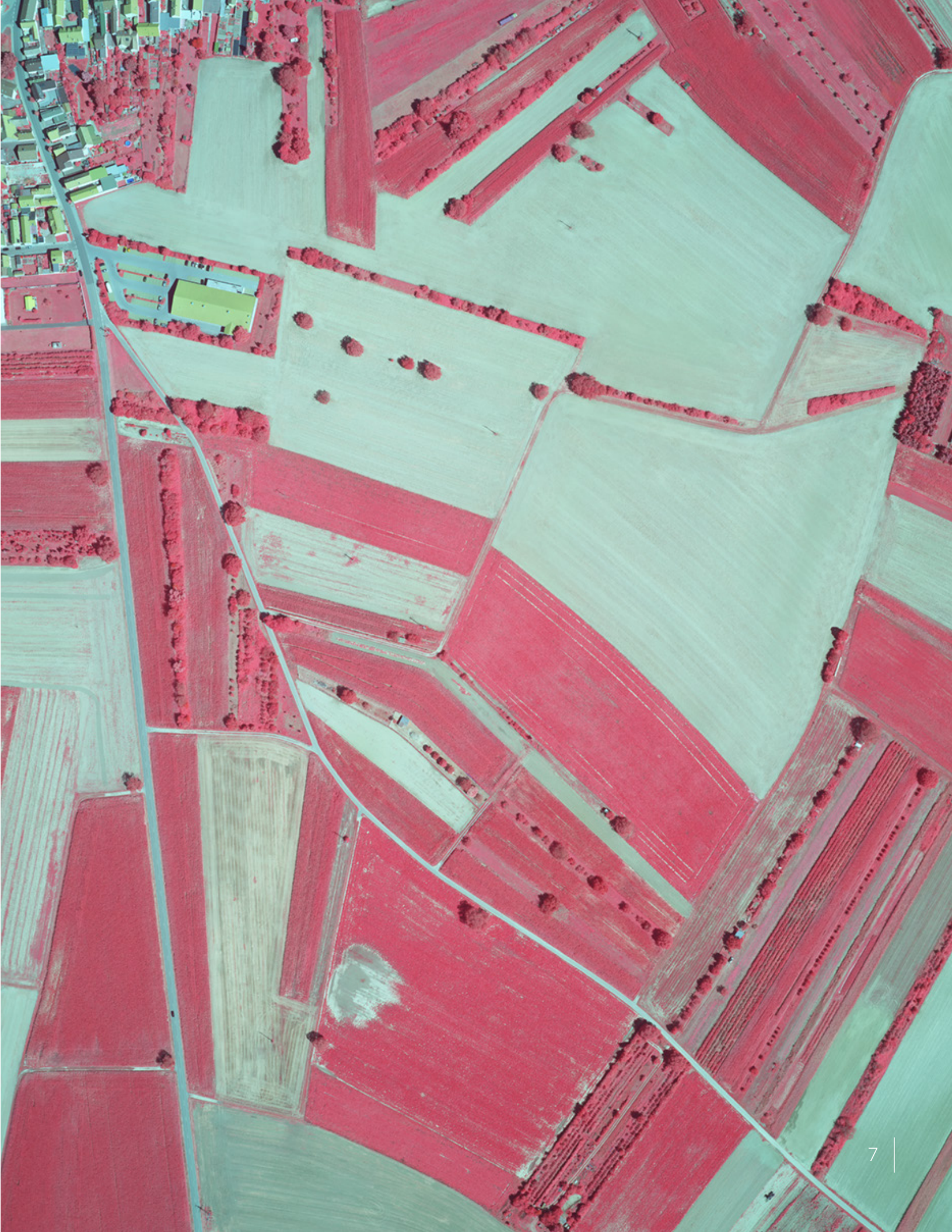
- Fully integrated Phase One Aerial System
- Optional 4-band solution (RGB & NIR)

4 Band Solution

A 4-Band configuration, comprising of the RGB and Achromatic camera models, captures images in RGB and NIR bands simultaneously, and then automatically processes them to generate distortion-free images and perform fine co-registration of the pixels from NIR to the RGB images. This function is extremely useful for remote sensing and mapping applications in the field of agriculture, forestry and environment monitoring.

iX Capture outputs the following products:

- 4-Band combined NIR and RGB (RGBN)
- 3-Band (CIR) combined NIR and RGB (NRG)
- NDVI (Normalized Difference Vegetation Index)
- Original and distortion-free RGB & NIR images

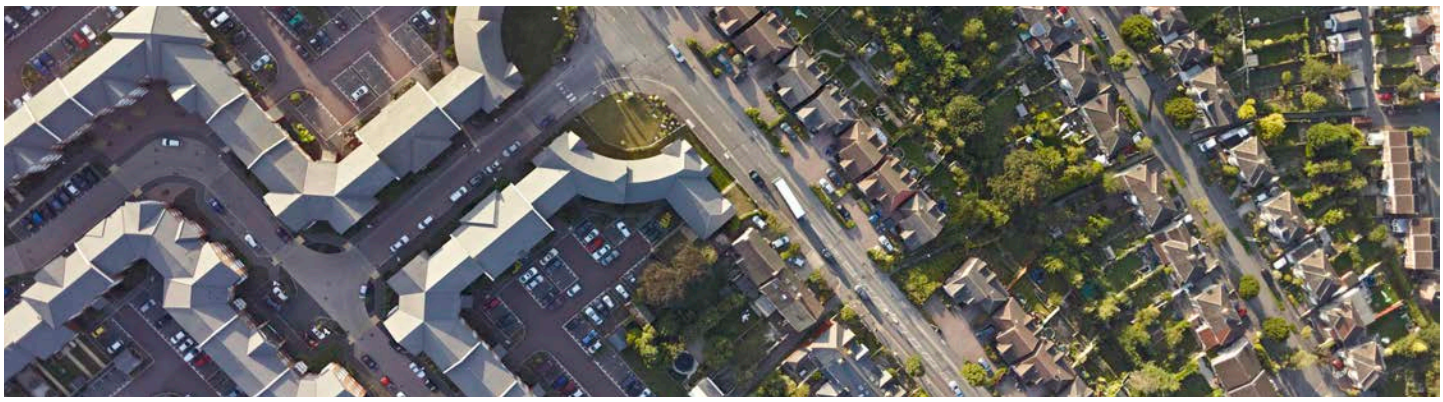


Applications

The iXM-RS150F and iXM-RS100F are the best choices for new mission types and assignments.

Photogrammetry, Mapping & GIS

Our metric cameras with a choice of RS lenses ranging from 32mm to 150mm, allows easy execution of mapping missions with high-resolution images and 2D & 3D map creation. The IXM-RS full frame cameras simplify surveys and mapping processes.



Agriculture, Forestry and Environment Mapping

iXM-RS150F and iXM-RS100F RGB and NIR metric cameras can be used in various applications such as agriculture, crop analysis for growth optimization, vegetation health, environmental contamination, and in city observation projects, including green site monitoring.

Oblique Imagery

Phase One cameras are used for oblique image capture as part of a multi-head solutions with five or more cameras together in an array. Phase One aerial cameras, with a new accuracy standard with real metric values, can increase revenues by delivering complete new data sets to customers in a minimal amount of time.

3D City modeling

When used as 3D mapping camera, the iXM-RS150F and iXM-RS100F fully comply with the requirement for high resolution imagery with high radiometric features in order to create top quality 3D City models.

Imagery for LIDAR

To obtain the most precise information for projects such as corridor mapping or Lidar projects, the combination of LIDAR and still imagery provided by iXM-RS150F or iXM-RS100F is proven to be a very efficient method. High resolution is required to capture the minute details of wires, conductors, poles etc...

Technical Specifications - iXM-RS Series

	iXM- RS150F	iXM-RS150F Achromatic	iXM-RS100F	iXM-RS100F Achromatic
Resolution	150MP 14204 x 10652		100MP 11608 x 8708	
Dynamic range (dB)	83		84	
Aspect ratio	4:3			
Pixel size (µm)	3.76		4.6	
Effective sensor size (mm)	53.4 x 40.0			
Light sensitivity (ISO)	50-6400	200-25600	50-6400	200-12800
Capture rate (fps)	2		1.6	
Camera type	Medium-format camera for aerial imaging			
Lens mount	Phase One RS			
Data interfaces	USB3, Ethernet 10G			
I/O interfaces	Trigger, mid exposure, ready, serial			
HDMI	1920 x 1080 60p			
Data storage	XQD card			
Synchronization speed	50 microseconds in an array of cameras			
Raw file compression 14bit	IIQ large: 150MB IIQ small: 100MB		IIQ large: 100MB IIQ small: 65MB	
IR cut-off filter	Yes	Yes, optional with clear glass	Yes	Yes, optional with clear glass
Connection to pod	4 x M4 bolts			
Power input	12 - 30 VDC			
Max. power consumption (W)	16			
Weight - excluding lens (g)	1000			
Dimensions - excluding lens (mm)	90 x 90 x 91			
Approvals	FCC Class A, CE, RoHS			
Temperature (°C)	-10 to 40			
Humidity (%)	15 - 80 (non-condensing)			

Technical Specifications - RS Lenses

	32mm	40mm	50mm	70mm	90mm	110mm	150mm MK II	180mm
Lens composition	14 elements in 10 groups	10 elements in 7 groups		9 elements in 7 groups	9 elements in 8 groups	6 elements in 5 groups	8 elements in 7 groups	7 elements in 3 groups
Focus range	Infinity							
Shutter speed max.	Up to 1/2500				Up to 1/2000	Up to 1/2500		Up to 1/2000
Exposure control	1/3 f - stop increments							
Aperture range	f/4 - f/22			f/5.6 - f/22		f/4 - f/22	f/5.6 - f/22	f/6.3 - f/22
Filter diameter (mm)	86	67		58	72	58	86	67
Total Length (mm) with Camera	186	174.5	181	179	224	184	257	283
Weight (g/lb)	970/2.13	730/1.60	800/1.76	580/1.27	1150/2.53	620/1.37	1150/2.53	1400/3.1
Angle of view - Long Side (°)	77.8	65	54.6	41.8	33	27.6	20.2	12.7
Angle of view - Short Side (°)	62.3	51	42.3	31.9	25.1	20.9	15.2	16.9
Entrance pupil to image plane (mm)	105.7	94.1	99.3	91.1	130.8	76.1	65.8	141.5

RSM Lens 300mm AF

Lens composition	11 elements in 9 groups
Minimum focus range	10 m to Infinity
Shutter speed max.	Up to 1/2000
Exposure control	1/3 f - stop increments
Aperture range	f/8 - f/32

Total Length with Camera (mm)	328
Weight (g/lb)	1900/4.18
Angle of view - Long Side (°)	8.4
Angle of view - Short Side (°)	6.3
Entrance pupil to image plane (mm)	85.5

About Phase One Industrial

Phase One Industrial is a division of Phase One A/S that researches, develops, and manufactures specialized industrial camera systems and imaging software solutions. The company focuses on specific applications such as aerial mapping; and surveying; ground and aerial inspection; agriculture; machine vision and homeland security.

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