

Phase One
High-Productivity Metric Camera
iXM Series



PHASE**ONE**

iXM Camera Series at a Glance

A Breakthrough Camera Platform – Created Uniquely for UAV-Based Imaging Missions

iXM Camera



Ready for full control over a wireless link for defining ISO, shutter speed, aperture, advanced functionalities, focus distance and upload flight plans.

Backside-Illuminated Sensor



The iXM is equipped with a medium-format sensor to implement backside-illumination technology for enhanced light sensitivity and extended dynamic range.

RSM Lenses



Five Phase One RSM lenses were specifically created to fit the pixel and sensor size while maintaining sharpness across the image. The lenses offer new uses for both inspection and mapping applications.

Facts & Features

- High resolution with a pixel count of 11664 x 8750 (iXM 100MP)
- Super-fast XQD storage card
- IMU/GNSS support for geo-tagging

Facts & Features

- 3.76 μm (iXM 100MP)
- 44x33 mm frame size
- 83 dB dynamic range
- RGB & Achromatic options for the 100MP

Facts & Features

- 35 mm & 80 mm Fixed focus
- 80 mm, 150 mm & 300 mm Motorized focus

The use of UAV-based platforms in the aerial imaging market is on the rise. It is now becoming the preferred method for collecting qualitative aerial data.

As a major player at the forefront of aerial imaging, Phase One Industrial developed the iXM series – revolutionary and uniquely designed cameras for UAV-imaging applications that redefine the boundaries of technological innovation.

Leaf Shutter



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

UAV's Engineered



The iXM 100MP and the iXM 50MP were developed to meet the challenges of the growing UAV- imaging market.

Get on a Mission... No Matter the Weather!



IP 53 Compliant:

Highly Resistant
to Vibration and
all Weatherproof

Facts & Features

- 3fps Capture
- 1/2500 sec. Exposure time
- 500K Actuations capacity

Facts & Features

- Lightweight robust
- Easy-to-integrate cameras
- USB-C and 10G Ethernet for versatility of connectivity to large UAVs and aircraft

Fully-Integrated Drone Solution

Phase One Industrial designed a powerful fully-integrated drone solution with DJI M600 PRO aerial platform, offering:

- Safe-and-easy aerial access to challenging areas
- Larger surface coverage in a single flight
- High Image resolution
- Cost-effectiveness and efficiency

Phase One's Drone Solution Combines State-of-the-art Hardware and Software Components

Phase One camera kit

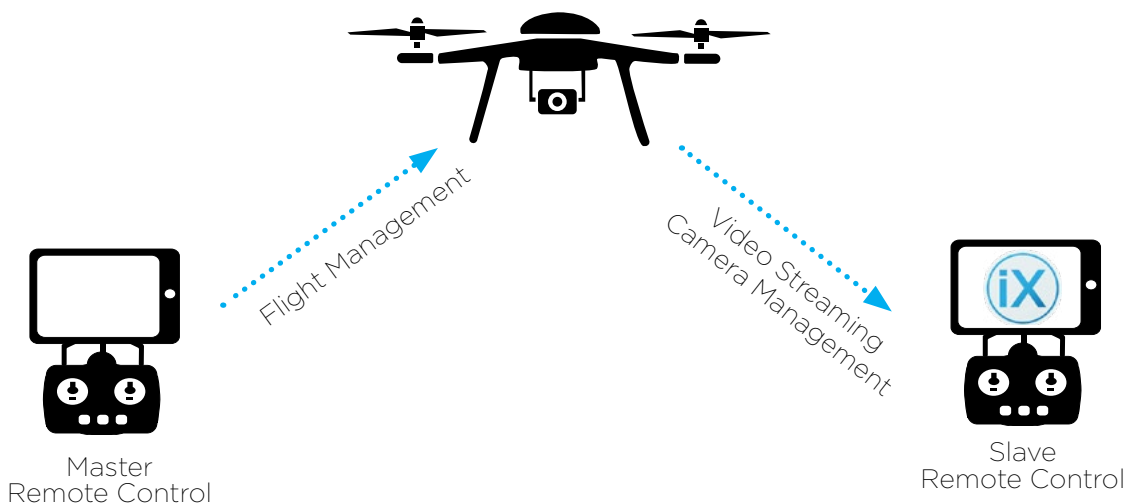
iXM 100MP or iXM 50MP metric cameras have a choice of four RSM lenses. With their small size and weight, these cameras are easily integrated into DJIM600 PRO, providing users with the advantages and high quality of medium-format cameras.

M600 PRO

A flying platform designed for professional aerial photography and industrial applications. M600 PRO is easy to set up and ready to use in a short time. Its Ronin-MX gimbal provides full control and functionality with solid locks, flexible rotation, and direct connection to the flight control system.

Phase One's iX Capture mobile application

A uniquely designed assisting application for iOS, enabling full camera control and remote management of the camera. The application enables complete and easy control of the camera via DJI's remote control system, with an intuitive and user-friendly interface.



The application offers diverse operating modes:

- Video streaming
- Auto or manual capture settings, to control the values of the ISO, shutter speed, and aperture
- Auto capture mode, to enable image capturing by waypoints, fixed distance, or by time intervals
- Focus distance
- Flight plans upload
- Camera control via DJI Lightbridge's two dials

Unique Features

- Smart triggering of the camera by waypoints, fixed distance, or fixed time
- Support for mission planning applications (such as DJI Ground Station pro) - for waypoint missions
- Geo-tagging of all images' location and gimbal position
- Remotely set target distance
- Dual remote controllers (drone and camera) enable each operator (UAV pilot and camera operator) to focus on their respective mission goals
- Industrial-grade build of the camera and aerial lenses, all of which are designed specifically for tough use in harsh environments



Complete Visibility Across Dynamic Environments

Phase One Industrial's cameras for UAVs open the door to new mission types and applications, including mapping, inspection, photogrammetry and homeland security.

Combining aerial platforms with Phase One iXM cameras, delivers higher quality images and larger imagery coverage - in a shorter time and risk-free.

Mapping

Phase One Industrial offers a precision-driven solution that simplifies surveying and mapping processes. It provides professionals with unlimited aerial data while saving time, money, and human resources.

Our metric cameras, with a selection of 35mm or 80mm RSM lens, enable the user to effortlessly execute mapping missions, capture high-resolution images, and create 2D and 3D maps.



Wind-Turbine Inspection

Wind turbines require millimeter-sized damage-spotting detection, with fast repair and minimal influence on the turbine's performance or on the environment. The iXM's large-area sensor provides a close and detailed look at all a turbine's parts. This can prevent a sudden failure, by detecting impending damage and signs of wear.

Phase One Industrial cameras were proven the best solution for wind-turbine inspection by Aerial Technology International (ATI) during an

inspection mission in Washington. Stephen Burt, ATI's CEO says, *"Once we showed our clients the images, they were shocked by the level of detail. By using these images, they were able to determine the blade was still in good health and they could avoid sending up a climber or removing the blades for ground inspection. We eliminated the human liability factor and saved the major cost of taking the turbine offline to remove the blades."*



Railway Inspection

One of the major challenges that railroads face is preventing failures in track. Inspecting thousands of miles of track has to be performed quickly to avoid traffic interference.

We offer a platform that enables predictive maintenance, which not only reduces the costs and the risky operations of ground teams but also increases the speed and precision of collecting data.

The value of Phase One Industrial's cameras was demonstrated successfully by Plowman Craven, in the digital railway project done in the UK. The ultra-high-resolution imagery enabled

the generation of high-accuracy survey-grade data and ensured a complete visual record that was backed up by measurement data. The superb quality of the raw photography captured, enabled studying smallest markings on the sleepers and identification of specific rail clips. It also made it possible to clearly view flash butt welds – objects that were highly problematic for surveyors when working on the tracks at night.

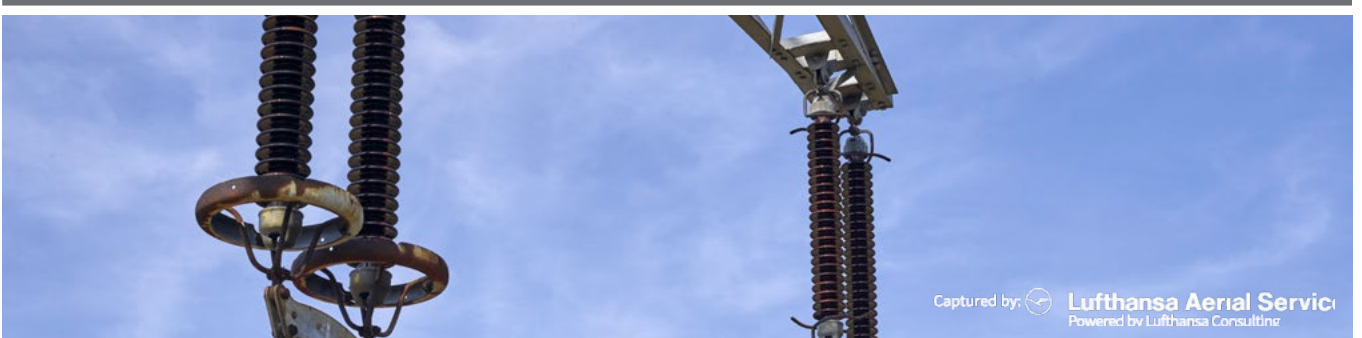
The value of Phase One cameras was also proven by Lufthansa Aerial Services, in a railway-inspection project, in Germany.



Power-Line Monitoring

Power-line inspection using drones is taking off as the ultimate solution. It has the ability to cover a large surface during each flight and provide accurate visualization of power-line components – as well as surrounding objects.

Phase One cameras enable a faster and more accurate collection of visual information. They also enable power companies to focus on fault-finding, effective repairing, strategic constructions, and maintenance planning, while minimizing the risks to surveying teams.



Captured by:  **Lufthansa Aerial Services**
Powered by Lufthansa Consulting

Tobias Wentzler, UAV Flight Systems Manager at Lufthansa Aerial Services said, *“Phase One fully-integrated drone solution, with the extraordinary camera systems, built the basis for further developments. We are confident to solve the challenging task of automating inspection process with Phase One to the highest degree possible as previous manually and semi-automated inspections have shown the most satisfying results to the customer.”*

Roads and Bridges Inspection (Civil Engineering)

Geospatial products enable better planning, construction, and maintenance of infrastructure projects, including roads and bridges. Effective inspection of aging infrastructure and fast identification of fundamental weaknesses is crucial.

Phase One Industrial’s cameras provide an advanced tool for road and bridge monitoring. They help in the execution of such projects while minimizing time, reducing risk to manpower, and avoiding traffic-flow disruption.



Pipeline Inspection

Pipeline infrastructures must be constantly monitored because of the potential threat to lives and economic losses. The oil and gas companies’ demand for a reliable inspection tool is fully addressed by Phase One’s cameras, which provide maximum coverage and

operational flexibility. It enables fast assessment of the pipes’ condition, precise identification of erosion, exposed pipes, vegetation overgrowth, and much more. It also helps decision makers with prioritizing maintenance and repair missions.





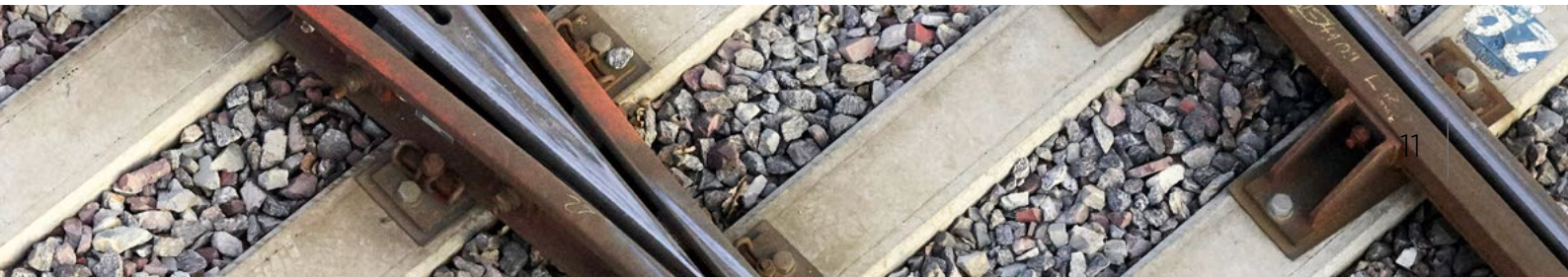
Technical Specifications

	iXM-100	iXM-100 Achromatic	iXM-50
Resolution	100MP 11664 x 8750		50MP 8280 x 6208
Dynamic range (dB)	83		84
Aspect ratio	4:3		
Pixel size (µm)	3.76		5.3
Effective sensor size (mm)	43.9 x 32.9		
Light sensitivity (ISO)	50 - 6400	200 - 25600	100 - 6400
Capture rate (fps)	3		2
Camera type	Medium-format camera for aerial imaging		
Lens mount	Phase One RSM		
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: 100MB IIQ small: 65MB		IIQ large: 50MB IIQ small: 33MB
IR cut-off filter	Yes		
Connection to pod	4 x M4 bolts		
Power input	12 - 30 VDC		
Max. power consumption (w)	16		14
Weight - excluding lens (g)	630		
Weight - including 80mm lens (g)	1100		
Dimensions - excluding lens (mm)	90 x 90 x 68		
Dimensions - including 80mm lens (mm)	90 x 90 x 164		
Approvals	FCC Class A, CE, RoHS		
Temperature (°C)	-10 to 40		
Humidity (%)	15 - 80 (non-condensing)		



RSM Lenses Technical Specifications

	35mm	80mm	80mm AF	150mm AF	300mm AF
Lens composition	12 elements in 8 groups	8 elements in 5 groups		8 elements in 7 groups	11 elements in 9 groups
Minimum focusing range	Infinity		3m to Infinity	10m to Infinity	
Shutter speed max (sec)	1/2500			1/2000	
Exposure control	1/3 f - stop increments				
Aperture range	f/5.6 - f/22				f/8 - f/32
Filter diameter (mm)	58			86	
Total length with Camera (mm)	144	164		199	328
Weight (gr)	540	470	630	744	1900
Angle of view - Long side (°)	63	30.4		17.1	8.4
Angle of view - Short side (°)	49.4	23		12.9	6.3
Entrance pupil to image plane (mm)	72	85		107	85.5





About Phase One

Phase One A/S is a leading researcher, developer and manufacturer of medium format and large format digital cameras, software and imaging solutions.

Founded in 1993, Phase One is a pioneer of digital photography. Phase One has developed core imaging technologies and a range of digital cameras and imaging modules. Phase One provides the world's highest image quality in terms of resolution, dynamic range, color fidelity and geometric accuracy. As such, Phase One has grown to become the leading provider of high-end imaging technology across many business segments. This includes both hardware and software for aerial mapping, industrial inspection and cultural heritage digitization, as well as serving the world's most demanding photographers.

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