

# PAS 880i

Accurate and affordable  
oblique & nadir aerial system



# Bringing a New Dimension to Aerial Mapping

Phase One introduces its impressive 880i Large Format Nadir and Oblique Integrated System. It combines the best of both nadir and oblique cameras into one powerful multi-use solution.

With one 280 MP RGB nadir, one 150 MP NIR nadir and four 150MP oblique RGB cameras, the system provides over 20,000 pixels across flight lines for the nadir and 14,000 pixels per oblique sensor.

Phase One's excellent image quality together with precise metric calibration, allows the PAS 880i to achieve the highest quality and accuracy of mapping imagery with an unbeatable performance of 2 frames per second.

The light and compact system is controlled by a new generation of Phase One software enabling the planning and execution of efficient aero photography missions.

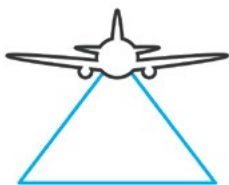
The combination of 90mm/150mm lenses for nadir and oblique ensures balanced ground resolution products for all cameras. The central leaf shutter provides speed up to 1/2500 sec. eliminating motion blur while the 3,76  $\mu\text{m}$  BSI pixels ensures sharp images under any light condition.

Simple to install and operate, the PAS 880i offers dual views for the pilot and navigator, streamlining the management of flight and image collection.

The system is ready for remote diagnostics and future updates.

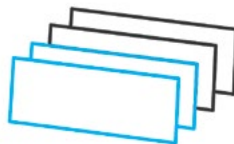


## Coverage (Nadir)



**+20,000**  
pixels across

## Capture Rate



**2**  
frames per second

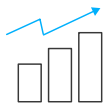
## Shutter Speed



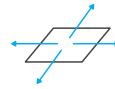
**Up to 1/2500**  
second

# PAS 880i's Unique Features

## Performance



High ROI for 2D and 3D imaging missions



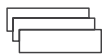
Precise image geometry and superb image quality



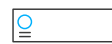
Metrically calibrated system for photogrammetric applications



Used for large area mapping and 3D city models

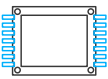


Over 80% forward overlap at high speed

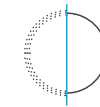


12 TB Storage with separate SSD for each camera

## Technology



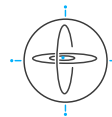
BSI CMOS sensor with 3.76  $\mu\text{m}$  pixel size



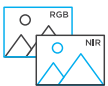
Blur Control Technology for FMC



Integrated GNSS/IMU



Flexible IMU options

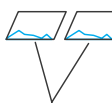


NIR option

## Software



New generation software iX Suite, from planning to data delivery with real-time QA in all steps



Standard image formats compatible to any photogrammetric software



Realtime image quality control

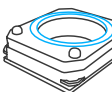


Ready for remote diagnostics and future updates

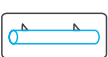
## Design



Light weight



Stabilization mount



Ergonomic handles for easy installation



# PAS 880i

## Technical specifications

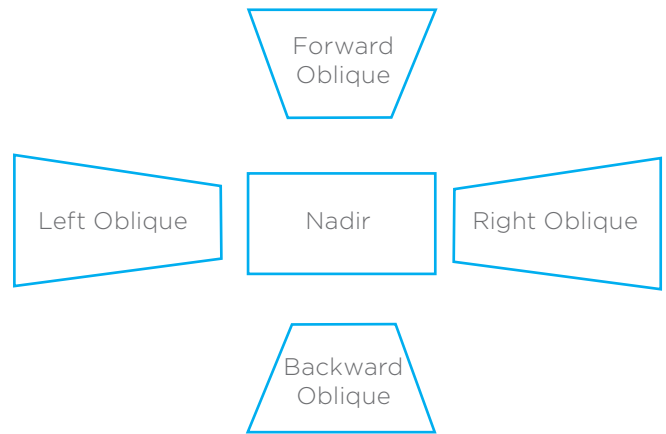
Nadir RGB Sensor	Frame geometry	Central Projection
	Sensor type	BSI CMOS Bayer Array
	Sensor size	280MP   20,150 x 14,118
	Pixel size (µm)	3.76
	Nominal focal length (mm)	90
	Shutter technology	Electromagnetic
	Shutter speed max.	1/2000
	Dynamic range (dB)	83
	Light sensitivity (ISO)	50-6400
	A/D conversion (bits)	14
	Aperture	f/5.6
	Field of view	32.9° along track   45.7° across track

Oblique Sensor	Frame geometry	Central Projection
	Sensor type	BSI CMOS Bayer Array
	Sensor size	150MP   14,204 x 10,652
	Pixel size (µm)	3.76
	Nominal focal length (mm)	150
	Shutter technology	Electromagnetic
	Shutter speed max.	1/2500
	Dynamic range (dB)	83
	Light sensitivity (ISO)	50-6400
	A/D conversion (bits)	14
	Aperture	f/5.6
	Field of view	Left/Right 42°: 15.2° along track   20.2° across track Forward/backward 45°: 15.2° along track   20.2° across track

Nadir NIR Sensor	Frame geometry	Central Projection
	Sensor type	BSI CMOS Bayer Array
	Sensor size	150MP   14,204 x 10,652
	Pixel size (µm)	3.76
	Nominal focal length (mm)	50
	Shutter technology	Electromagnetic
	Shutter speed max.	1/2000
	Dynamic range (dB)	83
	Light sensitivity (ISO)	50-6400
	A/D conversion (bits)	14
	Aperture	f/5.6
	Field of view	42.2° along track   56.2° across track

System	Capture (fps)	2
	Internal storage	Integrated, 6 x 2TB
	GNSS receiver/IMU	Integrated, Trimble Applanix AP+ , Applanix IMU91/IMU57
	Data interface	USB3
	Dimensions [Ø] (mm)	408 x 716
	Weight (kg)	47
	Operating temperature (°C)	-10 to 40
	Humidity (%)	15 to 80 (non-condensing)
	Storage temperature (°C)	-20 to 65
	Peripherals	7" Pilot display, 20" Operator display, Input devices
	Stabilized mount	GSM4000
	Average power consumption (W)	400
	Max. power consumption (W)	470

# PAS 880i Configuration



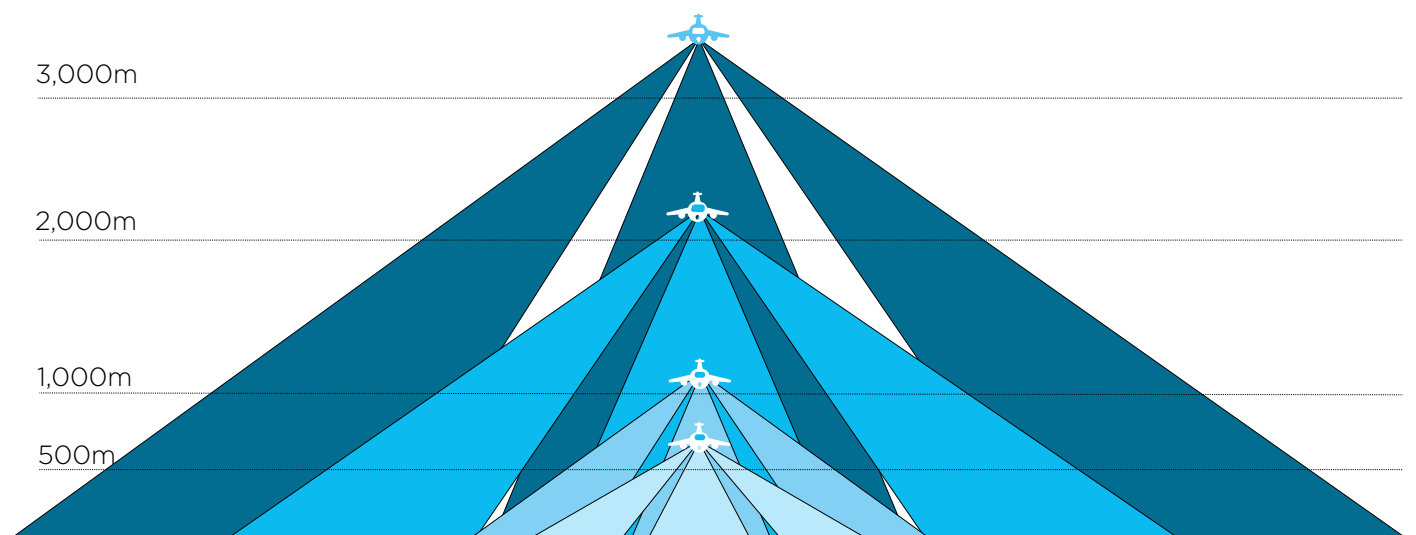
## IMU Options

The system is delivered with the advanced Trimble Applanix GNSS/IMU receiver from Standard Positioning Service to Post Processed data for high accuracy.

Two IMU options are available: 510 level accuracy (IMU-91) or 610 level accuracy (IMU-57), for highest accuracy.

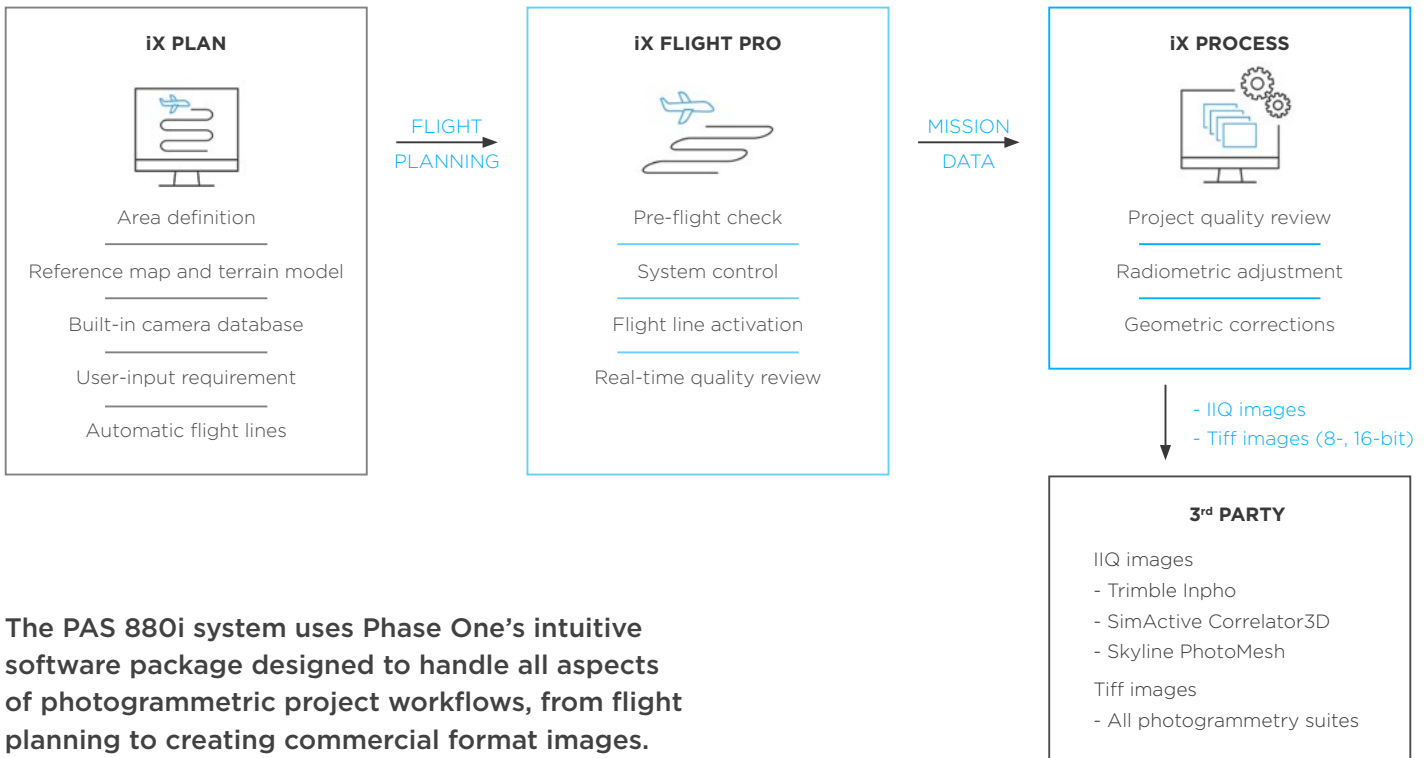
IMU options	Standard Position Service		Post Processed	
	IMU-91	IMU-57	IMU-91	IMU-57
Position (m)	1.5H 3V		0.02H 0.05V	
Velocity (m/s)	0.05	0.03	0.005	0.005
Roll & pitch (deg)	0.010	0.05	0.005	0.0025
True heading (deg)	0.07	0.03	0.010	0.005

## Coverage



GSD nadir (cm)	GSD oblique (cm)	Swath nadir (m)	Swath oblique (m)	Altitude (m)
5	4.2	1,008	880	1,197
10	8.4	2,016	1,760	2,394
15	12.6	3,024	2,640	3,591

# Data Capture Workflow



**The PAS 880i system uses Phase One's intuitive software package designed to handle all aspects of photogrammetric project workflows, from flight planning to creating commercial format images.**

The Phase One software is an open system enabling photogrammetric image processing and visual products to be produced with tools of choice. System users are not tied to specific products and may continue using existing packages, thereby avoiding large expenditure on software and training.

## Planning a flight with iX Plan

iX Plan is a user-friendly tool that provides extensive planning capabilities by importing area definition, DEM, GCP locations and reference maps. The preferred line direction is drawn and the selected polygon is then automatically filled with photography lines at the correct GSD, overlap and side lap.

With iX Plan:

- Flight lines can be edited.
- Quality control GSD and coverage ensure that the planning covers all requirements.
- Flight plans can be exported to Microsoft Excel for quick estimation of project cost.
- The flight plan can be exported from iX Plan to iX Flight Pro for flight management.

## Flying the plan with iX Flight Pro

iX Flight Pro serves as a flight management center, interfacing with all hardware such as cameras, Applanix GNSS/IMU, Somag stabilizer and pilot/operator monitors.

The flight director module provides position altitude and speed commands to the pilot based on mission design and planned tolerances.

This easy-to-follow-and-maintain flight director graphical display enables execution of long missions with low pilot fatigue, resulting in higher mission safety and quality.

The operator monitor enables mission and image collection management. A graphical collection summary provides the crew with a clear status of mission execution, ensuring that all images are collected at the correct locations, with the required quality and within the required speed and height tolerances.

Continuously displayed images and exposure value graphs allow the operator to manage camera parameters for best image acquisitions.

At the end of the mission, post flight reports in thin file format can be easily sent to the back office where engineers can assess project status and decide, prior to getting the large image files, whether the mission has been successfully completed or if a re-fly is required.

## Processing Images with iX Process

iX Process is a mission review and image processing application. It ensures the acquired images are of high quality, consistent GSD, sufficient overlap and side-lap, and without duplicates. iX Process allows users to adjust image color if needed, and exports distortion-free images in IIQ or Tiff formats



## 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 and 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, the company 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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