

Curitiba, 11 de fevereiro de 2021.

**Prefeitura Municipal de Porto Alegre**  
**Presidente da Comissão Especial de Licitações dos Programas Estruturantes e**  
**Projetos Prioritários – SLC/SMF do Município de Porto Alegre**  
**Ref.: Recurso Administrativo Habilitação / Concorrência nº17/2020**

Prezados Senhores,

**ENGEFOTO ENGENHARIA E AEROLEVANTAMENTO S/A**, pessoa jurídica de direito privado, inscrita no CNPJ/MF sob nº 76.436.849-0001-74, localizada na Rua Frei Francisco Mont'Alverne, nº 750, Jardim Santa Barbara, cidade de Curitiba, Estado do Paraná, inconformada com sua inabilitação, vem, tempestivamente, por meio de seu representante legal infra firmado, encaminhar a V.Sas. as razões de **RECURSO** à decisão desta Comissão publicada no Diário Oficial do município na data de 05/02/2021, conforme se segue:

## **1. DAS CONSIDERAÇÕES PRELIMINARES**

O presente recurso representa surpresa e indignação da Engefoto aos termos da inabilitação ocorrida no processo citado, conforme segue descrito:

## **2. QUANTO À QUALIFICAÇÃO TÉCNICO OPERACIONAL**

Apresentamos a listagem de equipamentos disponíveis na empresa, conforme solicitado no item 5.3.1.13, com condições de pleno atendimento à todas especificações requeridas nos produtos finais, preservando integralmente os padrões de precisão/exatidão/acurácia, completude e consistência, aspectos fundamentais as aplicações demandadas para produtos decorrentes da etapa do aerolevantamentos.

Com experiência comprovada de 40 anos de atuação nas áreas de geomática e engenharia de transportes, certificada ISO9000\_2015, código de conduta consolidado ([https://sistemas.engefoto.com.br/extranet/CodigoConduta/Codigo\\_Conduta\\_Engefoto.pdf](https://sistemas.engefoto.com.br/extranet/CodigoConduta/Codigo_Conduta_Engefoto.pdf)) mantivemos relação de transparência com cliente, informando os sensores e demais

equipamentos (inercial, GNSS, entre outros) que empresa dispõem para execução do recobrimento aerofotogramétrico, sempre atenta com excelência dos produtos intermediários e finais gerados.

Destacamos que pode-se considerar, para execução do recobrimento aéreo, opção de locação de equipamento no mercado com as características mais específicas requeridas no Edital, uma vez que o mesmo não apresenta restrições a esta possibilidade.

Acrescentamos ainda a possibilidade de em breve o uso de câmera do fabricante Phaseone (anexo), com características superiores às exigidas no edital, por exemplo, uso de sensores CMOS (Complementary Metal-Oxide Semiconductors) e não CCD (Charged Coupled Devices). Os sensores CCD dominaram o mercado por mais de 4 décadas, desde o final da década de 60. Mas a partir de 2015, os sensores CMOS começaram a ser mais usados, propiciando maiores resoluções por quadro (mais Mpixel), possibilitando uma velocidade maior de leitura, conseqüentemente em menores intervalos de tomada entre as imagens.

Estes sensores CCD consomem geralmente mais energia, e não têm uma radiometria tão boa quanto os sensores CMOS, além da velocidade menor de leitura.

A exposição acima é embasada na permanente busca da empresa em oferecer alta tecnologia a seus clientes, resultado da capacidade instalada na organização para desenvolver seus próprios sensores de acordo com demandas do mercado. Para citar as mais recentes nominamos a “Oblíqua” (utilizada na captura de imagens oblíquas para gerar o mapeamento 3D realístico de toda a mancha urbanizada de Curitiba), bem como a Stretta e a Doppia. Todas em uso e mobilizadas conforme as características técnicas das imagens pretendidas

Observamos que para Proposta Técnica a administração exigiu, de forma exemplar, condições e critérios rígidos a fim de escolher aquele que demonstrasse ter conhecimento do assunto, domínio da técnica e capacidade produtiva de modo a entregar, no prazo estipulado, os serviços e as peças técnicas demandadas, observadas as condições comerciais.

Consideramos fundamental, para interesse público, que haja possibilidade da avaliação da capacidade da empresa (ENVELOPE NÚMERO 2- PROPOSTA TÉCNICA), demonstrando experiência acumulada ao longo de 40 anos de atuação no mercado, em especial atuação para administrações municipais (PM Curitiba, PM Recife, PM, Aracaju, PM São Paulo, PM Macapá, PM Caxias do Sul, PM Novo Hamburgo entre tantos outros).

Assim a inabilitação da Engefoto, além de injusta e indevida, enfraquece o processo licitatório tão sólido, com objetivos tão bem definidos e lucidez da administração de optar pela contratação na modalidade técnica e preço.

Entendemos que a manutenção da decisão será prejudicial a toda administração municipal e munícipes.

### 3. DO REQUERIMENTO

Ante ao todo exposto, esta empresa vem a presença de Vossa Senhoria requerer seja considerada a sua habilitação no certame.

Nestes termos,

Pede e Espera **Deferimento**.

ROBERTO

COSTA:18499970982

ENGEFOTO ENGENHARIA E AEROLEVANTAMENTOS S.A.

CNPJ nº 76.436.849/0001-74

Roberto Costa

Diretor de Operações

CREA-PR 6258/D

CPF: 184.999.709-82

RG: 841.376-2

Assinado de forma digital por

ROBERTO COSTA:18499970982

Dados: 2021.02.12 10:08:44 -03'00'

# Phase One Aerial Solutions



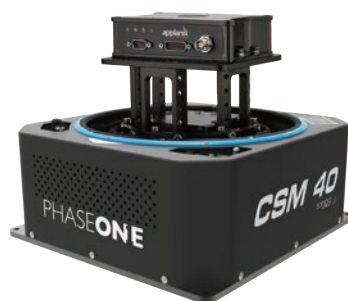
PHASE **ONE**

# A Line of Aerial Cameras and Solutions for Wide Aerial Coverage

We at Phase One Industrial continuously expand our offering and design the exact solutions that meet the requirements of the developing industrial and aerial imaging market. Our solutions specifically address the challenges of imaging data acquisition projects, helping our customers to increase productivity and reduce time and costs. We are proud to add to our line of products the 280MP Large Format Aerial Solution.

280MP

150MP/100MP



iX Capture

iX Flight

iX Plan

Controller

GNSS/IMU

Software



# 280MP Aerial Solution

## The New Standard in Large Format Aerial Imaging

Large area performance, affordable and accessible for use with a wider range of aircraft

With **over 20,000 pixels across**, compact size and weight, the 280MP Aerial Solution provides **higher Return on Investment** compared to any other large format system available on the market.

The 280MP Aerial Solution offers the **highest image capture rate and dynamic range**, increasing overall quality and accuracy of the final photogrammetric products.

The iXM-RS 280F provides a large format option that easily integrates with DSM400 gyro-stabilized mount creating a **compact and lightweight** system for use in

a wide range of aircraft.

The iXM-RS 280F is a dual lens metric camera, with 90mm lenses for capturing RGB information, and providing **superior image quality**. The iXM-RS 280F camera generates a central projection image from two 150MP nadir images with equal ground resolution.

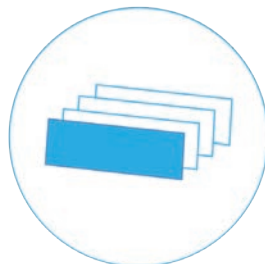
The Aerial solution is comprised of iX Controller, GNSS/IMU receiver (POS AV series), Somag gyro-stabilized mount (DSM 400), the Phase One flight planning and management software iX Plan and iX Flight as well as iX Capture.

*“The iXM-RS 280F provides accuracy and image quality”*

- Backside illuminated (BSI) CMOS sensor
- Wide dynamic range
- Improved light sensitivity
- More flying hours per day and more flights achievable per year
- Maintains object resolution in low light conditions



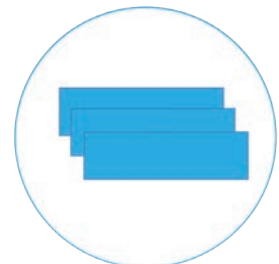
+ 20,000 pixels across



2 frames per second



390 kts Maximal ground speed for 10 cm GSD with motion blur under 1 pixel



97% forward overlap for 10 cm GSD at 150 kts

# iXM-RS 280F: Pure Sharpness by Blur Control FMC

The new generation of CMOS sensor eliminates the motion blur thanks to short exposure time, enabled by using high-speed shutters (up to 1/2000 sec) and higher sensitivity pixel design. Combined with RS shutter technology, the camera provides highly sharp images overcoming cameras with other FMC capabilities.



## Flying Height and Swath Width

GSD (cm)	Altitude (m)	Altitude (ft)	Swath (m)
3	718	2,356	605
5	1,197	3,926	1,008
10	2,394	7,853	2,015
15	3,590	11,779	3,023
20	4,787	15,706	4,030
25	5,984	19,632	5,038
30	7,181	23,559	6,045
33	7,899	25,915	6,650
35	8,378	27,485	7,053
40	9,574	31,412	8,060
45	10,771	35,338	9,068



# 4-Band Configuration 280MP Aerial Solution

Phase One is expanding the **camera's performance**, offering additional configuration for simultaneous capturing of **RGB and NIR images**. The 280MP 4-Band solution comprises dual 90 mm lenses for capturing RGB information, and a 50 mm lens for capturing NIR information and thus providing 4-Band (R,G,B,NIR) or CIR imagery.

The integrated **iX Capture software** automatically generates distortion-free 4-Band images by performing an **accurate matching of an NIR image to an RGB image**, creating precise and reliable output data.

iX Capture outputs:

- TIFF and JPG formats
- 4-Band RGB+NIR (RGBN)
- 3-Band CIR (Color Infra Red)
- NDVI (Normalized Difference Vegetation Index)
- Distortion-free / corrected RGB
- Distortion-free / corrected NIR

*“Expanding the camera performance with many configurations”*





RGB image taken with Phase One Solution

This is an aerial photograph of a mangrove forest. The trees are lush green, and the water is a muddy brown color. The image is taken with a Phase One camera solution.



CIR image taken with Phase One Solution

This is an aerial photograph of the same mangrove forest, but in a Color Infrared (CIR) format. The trees appear as bright red, and the water is a deep teal color. This image is also taken with a Phase One camera solution.

# Technical Specifications

	iXM-RS 280F 4-Band	iXM-RS 280F
Frame geometry	Central projection	
Resolution	284MP 20150 x 14118	
Image formats	PhaseOne RAW, IIQ-L, IIQ-S	
Output formats	Distortion Free RGB, NIR, CIR, RGBN, NVDI in TIFF 8 and 16 Bit or JPEG	Distortion Free RGB in TIFF 8 and 16 Bit or JPEG
RGB/NIR ratio	1:1.8	N/A
Frame width for 10 cm GSD (m)	2015	
Frame height for 10 cm GSD (m)	1412	
Frame area for 10 cm GSD (sq.km)	2.84	
Typical image size (MB) for TIFF (8 Bit)	1100	833

Lense type	Rodenstock	
Number of lenses	3	2
Focal length (mm)	90 & 50	90
FOV - across flight (°)	45.7	
FOV - along flight (°)	32.9	
Aperture range	f/5.6 - 11	
Exposure principle	Leaf shutter	
Shutter speed (sec)	Up to 1/2000	
Capture rate (fps)	2	
Light sensitivity (ISO)	50-6400	
Dynamic range (dB)	83	
NIR range (nm)	720 - 1000	N/A
Events synchronization speed (µsec)	100	

## Sensor Specifications

Sensor type	CMOS	
Sensor number	3	2
Pixel size (µm)	3.76	
Array (pixel)	14204 x 10652	
Analog-to-digital-conversion (bit)	14	

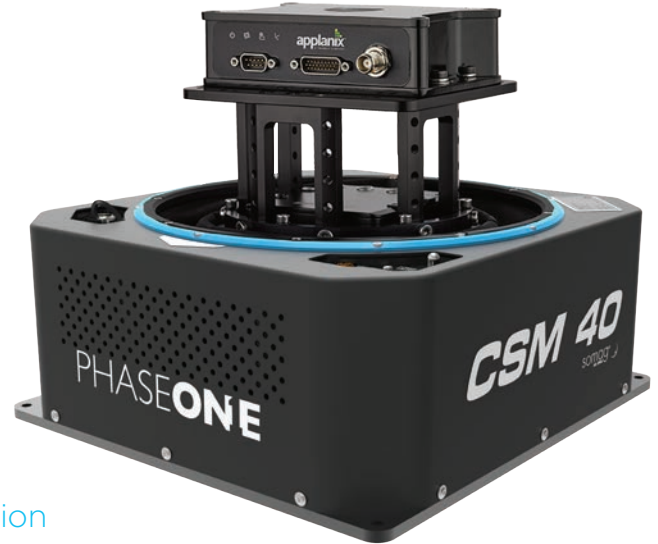


	iXM-RS 280F 4-Band	iXM-RS 280F
<b>Flight Specifications</b>		
Maximal ground speed for 10 cm GSD with motion blur under 1 pixel (knot)	390	
Maximal forward overlap for 10 cm GSD at 150 knot (%)	97	
Maximal orthophoto angle for 20% side overlap (°)	37	
Flight altitude for 10cm GSD (Feet)	7853	
<b>Operating Conditions</b>		
Power input (V DC)	12-30	
Maximal power consumption (W) – camera only	48	32
Humidity - non-condensing (%)	15 to 80	
Temperature (°C)	-10 to 40	
Approvals	FCC (Class A), CE, RoHS	
<b>System Specifications</b>		
System weight (kg/Lb)	32.5 / 72	31 / 68.5
System size (mm/In)	460 x 430 x 440 / 18.1 x 16.9 x 17.3	
Pilot monitor for navigation (In)	7	
Operator monitor for camera management (In)	15	
Gyro-stabilizer SOMAG	DSM400	
GNSS / IMU Applanix	POS AVX 210 / POS AV Series	
Power consumption	6 Amp at 28V	
<b>iX Controller MK4</b>		
Interfaces	USB3, Power and Control Ports for Camera, GNSS and Mount	
Storage capacity (TB)	1.0	
Storage type	SSD	
Storage exchangeability	Yes	



# Phase One 150MP/100MP Aerial Solutions

Phase One 150MP and 100MP Aerial Solutions are **fully integrated systems** based on the iXM-RS150F and the iXM-RS100F high-resolution metric cameras respectively. Each Aerial solution includes the camera and additional components, such as: the iX Controller, Somag stabilizer, Applanix GPS/ IMU unit and the Phase One flight planning and management software iX Plan and iX Flight as well as iX Capture.



- Fully integrated Phase One Aerial Solution
- Large image coverage
- Exceptional accuracy and image quality
- Optional 4-Band Aerial Solution with dual frame sensors for RGB and NIR imaging
- Light weight & Low power

## iXM-RS150F Camera

Equipped with a **full frame sensor** (14204 x 10652), and a **3.76-micrometer pixel size** that enables higher ground resolution from a higher flight altitude and provides a larger aerial coverage resulting in higher aerial survey productivity.

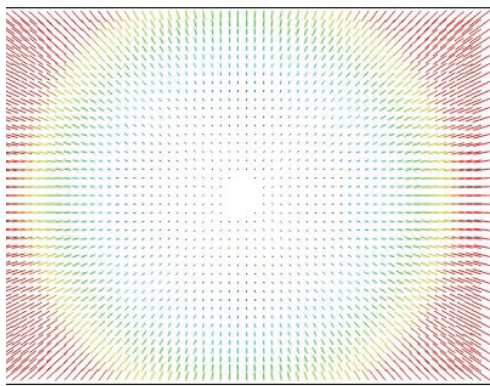
The camera comes with one of **eight RS lenses** ranging from 32mm to 180mm focal length, and the 300mm **RSM lens**, all equipped with a **central leaf shutter** to ensure geometrically correct aerial images.

Designed and built for aerial photography by Rodenstock and Schneider Kreuznach, the lenses are factory **calibrated for infinity focus** and equipped with a central leaf shutter speed up to 1/2500 sec. It offers high capture speed of 2 fps for an array of flight conditions. The RS lenses opening angle is specially fitted for oblique and lidar systems.

- BSI CMOS sensor
- High dynamic range of 83 dB
- Fast image capture rate of 2 frames per second
- Recommended for high quality 3D city models

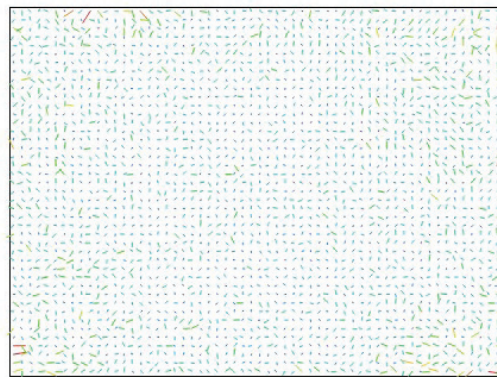
*“The iXM-RS150F is a highly productive 150-megapixel aerial survey camera”*

## Camera Distortion Model



Distorted Image

200 pix



Undistorted Image

1 pix



1. The distortion model of the camera corresponds to a standard Brown-Conrady symmetric radial distortion model.
2. Images captured with the camera may be easily transformed to an undistorted image with a maximal residual of less than 1  $\mu\text{m}$ .

## 4-Band Solution 150MP/100MP Aerial Solution

The four-band solution is comprised of the RGB and Achromatic camera models, in which images are captured in RGB and NIR bands simultaneously, and then processed automatically to generate distortion-free images and perform fine co-registration of the pixels from NIR to the RGB images. The 4-Band solution includes two synchronized cameras (RGB and NIR) in addition to the iX Controller, Somag gyro stabilized mount, Applanix GNSS/IMU receiver (POS AV series) and the Phase One flight planning and management software iX Plan and iX Flight as well as iX Capture software to control camera during flight.

iX Capture software is also used to generate distortion-free images and to perform accurate matching of the NIR image to the RGB image.

### iX Capture Outputs:

- 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

*“Extremely useful for remote sensing and mapping applications in agriculture, forestry and environment monitoring”*

# Technical Specifications

	iXM-RS150F 4-Band	iXM-RS150F
Frame geometry	Central projection	
Resolution	150MP 14204 x 10652	
Image formats	PhaseOne RAW IIQ-L, IIQ-S	
Output formats	Distortion Free RGB, NIR, CIR, RGBN, NVDI in TIFF 8 and 16 Bit or JPEG	Distortion Free RGB in TIFF 8 and 16 Bit or JPEG
RGB/NIR ratio	1:1	N/A
Frame width for 10 cm GSD (m)	1420	
Frame height for 10 cm GSD (m)	1065	
Frame area for 10 cm GSD (sq.km)	1.51	
Typical image size (MB) for TIFF (8 Bit)	600	450

	Rodenstock / Schneider-Kreuznach							
Lense type								
Number of lenses	2				1			
Focal length (mm)	32	40	50	70	90	110	150	180
FOV - across flight (°)	79.7	67.5	54.6	41.8	33.1	27.3	20.2	16.9
FOV - along flight (°)	64.1	53.2	43.7	31.9	25.1	20.6	15.2	12.7
Aperture Range	f/5.6 - 22				f/6.3 - 22			
Exposure principle	Leaf shutter							
Shutter speed (sec)	1/2500				1/2000	1/2500	1/2000	
Capture rate (fps)	2.0							
Light Sensitivity (ISO)	50-6400							
Dynamic Range (dB)	83							
NIR Range (nm)	720 - 1000				N/A			
Events synchronization speed (µsec)	100							

## Sensor Specifications

Sensor type	CMOS							
Sensor number	2				1			
Pixel size (µm)	3.76							
Array (pixel)	14204 x 10652							
Analog-to-digital- conversion (bit)	14							



	iXM-RS150F 4-Band	iXM-RS150F
<b>Flight Specifications</b>		
Maximal ground speed for 5cm GSD with motion blur under 1 pixel (knot)	240	
Maximal forward overlap for 5cm GSD at 150 knot (%)	93	
Maximal orthophoto angle for 20% side overlap (°)	27 for 90mm focal lens	
Flight altitude for 5cm GSD (Feet)	3926 for 90mm focal length	
<b>Operating Conditions</b>		
Power input (V DC)	12-30	
Maximal Power consumption (W) - camera only	32	16
Humidity - non-condensing (%)	15 to 80	
Temperature (°C)	-10 to 40	
Approvals	FCC (Class A), CE, RoHS	
<b>System Specifications</b>		
System weight (kg/Lb)	31 / 68.5	8.5 / 19
System size (mm/In)	460 x 430 x 440 / 18.1 x 16.9 x 17.3	(*)290 x 275 x 121 / 11.4 x 10.8 x 4.7
Pilot monitor for navigation (In)	7	
Operator monitor for camera management (In)	15	
Gyro-stabilizer SOMAG	DSM400	CSM40
GNSS/IMU Applanix	POS AVX 210 / POS AV Series	
Power consumption	6 Amp at 28V	
<b>iX Controller MK4</b>		
Interfaces	USB3, Power and Control Ports for Camera, GNSS and Mount	
Storage capacity (TB)	1.0	
Storage type	SSD	
Storage exchangeability	Yes	
Weight (kg/Lb)	5.11 / 2.5	
Size (mm/In)	290 x 109 x 225 / 9.8 x 3.4 x 4.11	

(\*) Weight of controller not included









# Technical Specifications

	iXM-RS100F 4-Band	iXM-RS100F
Frame geometry	Central projection	
Resolution	100MP 11608 x 8708	
Image formats	PhaseOne RAW IIQ-L, IIQ-S	
Output formats	Distortion Free RGB, NIR, CIR, RGBN, NVDI in TIFF 8 and 16 Bit or JPEG	Distortion Free RGB in TIFF 8 and 16 Bit or JPEG
RGB/NIR ratio	1:1	N/A
Frame width for 10 cm GSD (m)	1161	
Frame height for 10 cm GSD (m)	871	
Frame area for 10 cm GSD (sq.km)	1.01	
Typical image size (MB) for TIFF (8 Bit)	400	300

Lense type	Rodenstock / Schneider-Kreuznach							
Number of lenses	2				1			
Focal length (mm)	32	40	50	70	90	110	150	180
FOV - across flight (°)	79.7	67.5	54.6	41.8	33.1	27.3	20.2	16.9
FOV - along flight (°)	64.1	53.2	43.7	31.9	25.1	20.6	15.2	12.7
Aperture Range	f/5.6 - 22				f/6.3-22			

Exposure principle	Leaf shutter				
Shutter speed (sec)	1/2500		1/2000	1/2500	1/2000
Capture rate (fps)	2				
Light Sensitivity (ISO)	50-6400				
Dynamic Range (dB)	84				
NIR Range (nm)	720 - 1000		N/A		
Events synchronization speed (µsec)	100				

## Sensor Specifications

Sensor type	CMOS			
Sensor number	2		1	
Pixel size (µm)	4.60			
Array (pixel)	11608 x 8708			
Analog-to-digital-conversion (bit)	14			



	iXM-RS100F 4-Band	iXM-RS100F
<b>Flight Specifications</b>		
Maximal ground speed for 5cm GSD with motion blur under 1 pixel (knot)	240	
Maximal forward overlap for 5cm GSD at 150 knot (%)	91	
Maximal orthophoto angle for 20% side overlap (°)	27 for 90mm focal lens	
Flight altitude for 5cm GSD (Feet)	3209 for 90mm focal length	
<b>Operating Conditions</b>		
Power input (V DC)	12-30	
Maximal Power consumption (W) - camera only	32	16
Humidity - non-condensing (%)	15 to 80	
Temperature (°C)	-10 to 40	
Approvals	FCC (Class A), CE, RoHS	
<b>System Specifications</b>		
System weight (kg/Lb)	31 / 68.5	8.5 / 19
System size (mm/In)	460 x 430 x 440 / 18.1 x 16.9 x 17.3	(*)290 x 275 x 121 / 11.4 x 10.8 x 4.7
Pilot monitor for navigation (In)	7	
Operator monitor for camera management (In)	15	
Gyro-stabilizer SOMAG	DSM400	CSM40
GNSS/IMU Applanix	POS AVX 210/ POS AV Series	
Power consumption	6 Amp at 28V	
<b>iX Controller MK4</b>		
Interfaces	USB3, Power and Control Ports for Camera, GNSS and Mount	
Storage capacity (TB)	1.0	
Storage type	SSD	
Storage exchangeability	Yes	
Weight (kg/Lb)	5.2 / 11.5	
Size (mm/In)	290 x 109 x 225 / 9.8 x 3.4 x 4.11	

(\*) Weight of controller not included



# Aerial Solution Components

## Hardware



GNSS/IMU system

The Applanix' POS AVX 210/ POS AV series enable direct georeferencing of aerial images. By integrating precision GNSS with inertial technology, POS AV enables precise determination of position and attitude, as well as the completion of geospatial projects in a more efficient and cost effective manner. The Phase One 280MP/ 150MP/100MP Aerial Solutions are also compatible with additional GNSS/IMU systems.

Gyro Stabilized Mounts

SOMAG DSM400 - was specifically designed for the Phase One Aerial Solutions. With a low weight of 14 kg and a high payload of 35 kg, the mount supports the reduction of the angular rate, provides optimal stabilization of the system and allows efficient and precise image capturing. This stabilizer is also used for 4-band configuration.

SOMAG CSM40 - a small modular stabilization device that was specifically designed for the Phase One 100MP/ 150MP Aerial Solutions. With a low weight of 5.2 kg and a high payload of 15 kg, the special mount system is particularly suitable with ultralight aircrafts.

iX Controller

Designed to enable rapid data transfer, the iX Controller has the ability to control up to six Phase One aerial cameras independently. Built as a workhorse, the system boasts a small footprint and easily integrates into any aircraft. The iX Controller includes a robust removable protective SSD tray for convenient and secure transfer and handling.

Acting as a central hub to Phase One Aerial Solutions, it controls the cameras, the gyro-stabilizing mount, the GNSS/IMU system and runs iX Capture and iX Flight software. iX Controller includes an I/O port to enable accurate activation of multiple cameras by iX Flight, pre-installed on the iX Controller.

The iX Controller supports triple monitors, one for the pilot and two for the operator so both can monitor and observe different views of the set up simultaneously.

	IIQ-L Format	IIQ-S Format
<b>Camera</b>	<b>Number of images</b>	
280 MP	3100	4600
150 MP	6000	9000
100 MP	9000	13500

# Software Package



iX Capture

The iX Capture is an aerial capture, control and image processing software with an intuitive interface that displays key information such as exposure settings, histogram, GNSS/IMU data and frame count. The post processing capabilities and advanced workflow enable the fast production of distortion free RGB and CIR images, and exclusively support the processing of 280MP images.

*“Provides real-time feedback and confidence of correct image capturing”*



iX Flight

The iX Flight is an interactive and intuitive flight management system for precise execution of a mission, and comes uploaded to the iX Controller. Controlled and operated with ease, iX Flight enables the planning, positioning and sensors' management / triggering. During the flight, iX Flight collects log files that enable post processing, mission analysis, and post-flight reports.

With two display screens for both the pilot and the operator, each has the exact information they need for a successful aerial-image acquisition.

The Phase One Aerial Solutions are also compatible with additional Flight Management systems.

*“Reduces aerial survey operational costs and increasing productivity”*



iX Plan

With its intuitive GUI and multiple control functions, the iX Plan application enables users to simply generate flight plans. It enables fast import of the digital terrain model (DTM), base map, project shape, and ground control points. It also includes all Phase One sensors characteristics.

iX Plan automatically calculates flight lines and trigger points, based on sensor parameters, project parameters and mapped terrain height.

iX Plan displays the planning results used during a flight as maps and tables, which can also be used for calculating project's costs.

*“From flight planning to image delivery”*

# Explore Our New Interactive Case Studies

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- Better Efficiency
- More Productivity
- Outstanding Results
- Amazing Success Stories...



<https://casestudies.industrial.phaseone.com/>

## About Phase One

Phase One A/S is a leading researcher, developer and manufacturer of medium format and large format digital cameras 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, providing 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 demanding business segments, such as aerial mapping, industrial inspection and cultural heritage digitization, as well as serving the world's most demanding photographers.

### Phase One A/S

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11755 Airport Way, Suite 216  
Broomfield, CO 80021  
USA  
Tel.: +1 (303) 469-6657

### Phase One Germany

Lichtstr. 43h  
50825 Köln  
Germany  
Tel.: +49 (0)221/5402260  
Fax: +49 (0)221/5402262

### Phase One Japan Co., Ltd.

8F VOLT-Nagatacho  
Bldg. 2-7-2 Hirakawacho,  
Chiyoda-ku, Tokyo  
102-0093, Japan  
Tel: +81-3-6256-9681  
Fax: +81-3-6256-9685

### Phase One Asia

Room 1009, 10/F Eight  
Commercial Tower,  
8 Sun Yip Street, Siu Sai Wan  
Hong Kong  
Tel.: + 852 28967088  
Fax: + 852 28981628



[industrial.phaseone.com](http://industrial.phaseone.com)

PHASEONE

Prepared For:

Reynaldo B. Souto  
 Engefoto  
 Rua Frei Francisco Mont'Alverne, 750  
 Jardim das Americas  
 Curitiba  
 Brazil

reynaldobsouto@engefoto.com.br

**Proposal No.:** 280 4Band\_10-02-2021\_Engefoto

**Customer** Engefoto

Item Number	Description	List Price	Quantity	Sale Price
72342	PhaseOne Aerial System 280MP 4-Band	\$ 495,000	1	\$ 495,000
				\$ -
				\$ -
				<i>Discount (10%)</i>
				<b>\$ -49,500</b>
				<b>TOTAL:</b>
				\$ 445,500

Tax and freight not included and to be added to final invoice if applicable  
 Quote valid 30 days from issue date



Prepared For:

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Rua Frei Francisco Mont'Alverne, 750  
Jardim das Americas  
Curitiba  
Brazil

reynaldobsouto@engefoto.com.br

**Proposal No.:** 280 4Band\_10-02-2021\_Engefoto

## Terms and

1. Unless otherwise set out herein, Seller's Offer, and any order issued by Buyer to Seller for the goods and/or services specified herein, is strictly limited to Seller's Terms and Conditions of Sale (attached to this quotation).

If any conflict appears between the Terms and Conditions of Sale and sections 2-6 of this quotation, sections 2-6 of this quotation shall prevail.

2. Purchase Orders are to be issued to:

**Phase One US Inc.**  
200 Broadhollow Road  
Melville, NY 11747  
United States

3. Shipment date is 2-4 weeks from receipt of order at Phase One A/S, subject to confirmation at time of Order

4. All prices are CPT, airport of import or Destination.

5. Standard Payment Terms:

**Payment due at 30(35%)/60(35%)/90(30%) days after shipping of merchandise and receipt of invoice.**

6. Manufacturer's warranty is 1 year from date of shipment, unless otherwise specified. Warranty service is provided at the Phase One A/S factory or at a location mutually agreed to by the Seller and the Buyer.

*Please contact Phase One US Inc. if there is any question as to the terms and conditions that apply to an order.*

### **Phase One US Inc. Acceptance**

Signature: \_\_\_\_\_

Name: Luis Viveros

Title: Sales Manager

Date: December, 4th, 2020

### **Customer Acceptance**

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

# PHASE**ONE** INDUSTRIAL

2/10/2021

Prepared For:

Reynaldo B. Souto  
Engefoto  
Rua Frei Francisco Mont'Alverne, 750  
Jardim das Americas  
Curitiba  
Brazil

reynaldobsouto@engefoto.com.br

# PHASE**ONE**

## INDUSTRIAL

2/10/2021

Prepared For:

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Engefoto  
Rua Frei Francisco Mont'Alverne, 750  
Jardim das Americas  
Curitiba  
Brazil

[reynaldobsouto@engefoto.com.br](mailto:reynaldobsouto@engefoto.com.br)

Prepared For:

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 Engefoto  
 Rua Frei Francisco Mont'Alverne, 750  
 Jardim das Americas  
 Curitiba  
 Brazil

reynaldobsouto@engefoto.com.br

**Proposal No.:** 10-02-2021\_Engefoto

**Customer** Engefoto

Item Number	Description	List Price	Quantity	Sale Price
<b>150MP Metric Camera</b>				
77488	Upgrade 50/60/80MP to iXM-RS150F (Excluding lens)	\$ 69,000	2	\$ 138,000
73121	Rodenstock RS-90mm Lens	\$ 13,800	2	\$ 27,600
72181	iXM-RS150F Achromatic - 50mm Camera kit	\$ 90,000	1	\$ 90,000
				<i>Discount (10%)</i>
				<b>\$ -25,560</b>
	<b>TOTAL:</b>			<b>\$ 230,040</b>

Tax and freight not included and to be added to final invoice if applicable  
 Quote valid 30 days from issue date

Prepared For:

Reynaldo B. Souto  
Engefoto  
Rua Frei Francisco Mont'Alverne, 750  
Jardim das Americas  
Curitiba  
Brazil

reynaldobsouto@engefoto.com.br

**Proposal No.:** 10-02-2021\_Engefoto

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### **Phase One US Inc. Acceptance**

Signature: \_\_\_\_\_

Name: Luis Viveros

Title: Sales Manager

Date: December, 4th, 2020

### **Customer Acceptance**

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

# PHASE**ONE** INDUSTRIAL

2/10/2021

Prepared For:

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# PHASE**ONE** INDUSTRIAL

2/10/2021

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## Wilson Pereira Ramos

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**De:** Jane Silva <janesilva@engefoto.com.br>  
**Enviado em:** sexta-feira, 12 de fevereiro de 2021 14:38  
**Para:** \_SMF - SLC - Licitações de Projetos Estruturantes e Prioritários  
**Cc:** 'Marco Neia'; 'Juliano Tramontina'; robertocosta@engefoto.com.br; 'Dyenison Dalpiaz'; 'Natalina Borges'  
**Assunto:** Envio Recurso Resultado Habilitação Concorrência nº17/2020  
**Anexos:** CP014\_21\_Recurso\_Habilitacao.pdf

Prezados,

Engefoto Engenharia e Aerolevantamentos S.A., CNPJ: 76.436.849/0001-74, de acordo com o item 9.2.1, alínea "a" do Edital da Concorrência nº17/2020, vem pelo presente interpor Recurso para o resultado da habilitação do citado certame.

Solicitamos a gentileza de confirmação de recebimento desta mensagem.

Att,



Eng<sup>a</sup> Jane Cristina R. da Silva  
Supervisora Comercial  
+55 41 3071-4224  
engefoto.com.br

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This message has been scanned for viruses and dangerous content by [E.F.A. Project](#), and is believed to be clean.