PHASE ONE INDUSTRIAL

The world leader in high resolution imaging
OUR COMPANY

WE ARE A WORLD LEADING PROVIDER of medium format digital imaging systems and solutions for industrial applications and professional photographers.

We supply IMAGING BREAKTHROUGHS from high-resolution camera systems to advanced software solutions for better & more productive imaging workflows.

PHASE ONE INDUSTRIAL focuses on imaging accuracy for industrial applications ranging from aerial image acquisition, through machine vision, to digital heritage preservation.
FACTS & FIGURES

- **Trusted brand** with more than 100,000 satisfied customers
- The **market leader** in Medium Format Imaging
- Worldwide **distribution infrastructure**
- 24/7 global **customer support**
- Customer centric & innovative team with + 25 nationalities
WHY

PHASE ONE

- World class Image Quality/Accuracy Technology with standard and custom solutions
- Best in class customer centricity, dedication, service and long term commitment
- Co-working with multiple technology & distribution partners to secure best possible solution
WE SERVE THE WORLD’S LEADING BRANDS WITH TOP IMAGE QUALITY & PRODUCTIVITY

- 3D cities
- Airborne mapping
- Engineering
- Asset management
- Forestry, agriculture, research
- Infrastructure planning
- Power line monitoring
- Open pit mining
A NEW WORLD OF APPLICATIONS

CASE STUDIES

PHASEONE
Specialty Imaging Solutions
THE LEADING EDGE OF
3D AERIAL IMAGERY

KEY SUCCESS
A revolutionary 3D aerial imagery solution, tailored to the customers specific requirements and unique needs for Global application

RESULTS
- Close cooperation with the customer for the system’s characterization
- Customized optics, mechanics and product design
- SW solution for converting raw files to TIFF in data centers
3D AERIAL MAPPING
FOR SMART CITIES

KEY SUCCESS
Integration of eight Phase One iXU-RS 1000 cameras, presents the leading edge of 3D aerial mapping and image acquisition

RESULTS
- Acquiring large format NADIR and oblique aerial imagery in one single flight
- Efficient and cost effective solution with lower operational cost
- Outstanding image quality

IGI – Urban Mapper
Germany
**KEY SUCCESS**

Fully automatic solution for capturing and processing 4-Band imagery, using two high-resolution Phase One aerial cameras.

**RESULTS**

*Simplifying the workflow* by capturing 100MP 4-BAND imagery.

Four different aerial mapping jobs were executed, focusing on the quality of vegetation in Speyer, Germany.
KEY SUCCESS

ONE Phase One medium format camera, integrated with NOAA software enable a more accurate, efficient and environmentally friendly solution.

RESULTS

Capture more animals in each shot, no matter the seals location due to a large swath and high dynamic range.

Adapt to any condition, using FMC to cope with high speed and lower altitude motion blur.

Achieving 1.6 cm GSD.
OUR RANGE OF PRODUCTS

LENSES
- Rodenstock
- Schneider-kreuznach

CAMERAS
- iXU-RS
- iXU

CONTROLLER
- iX CONTROLLER

SOFTWARE
- iX CAPTURE
- CAPTURE ONE
- SDK
## Our Range of Products

<table>
<thead>
<tr>
<th>Rodenstock and Schneider-Kreuznach lenses</th>
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<tbody>
<tr>
<td>Enabling speeds of up to 1/2500s</td>
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<tr>
<td>Manufactured with precision for ultimate image quality, performance and durability</td>
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<tr>
<td>Available in a range of focal lengths from 32 mm to 240 mm</td>
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<table>
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<tr>
<th>50MP to 100MP Sensors</th>
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<tr>
<td>Cost effective alternatives to large format cameras</td>
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<tr>
<td>RGB and NIR solutions</td>
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<tr>
<td>Multiple cameras synchronization</td>
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<tr>
<td>UAV Ready - low weight and close integration with Pro UAV platforms</td>
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<tr>
<td>USB3 and CF Cards as Storage options</td>
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<tr>
<td>H/W interface for waypoint mapping</td>
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<table>
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<tr>
<th>Rugged and Fanless platform</th>
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<tr>
<td>Power and Drive multiple cameras</td>
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<tr>
<td>Two removable solid state drives (SSD) with optional RAID system for data mirroring</td>
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<tr>
<td>Unlimited storage with multiple SSD drives</td>
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<tr>
<td>Pre-installed with iX Capture and Capture One</td>
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<tr>
<th>Software Solutions</th>
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<tr>
<td>Best in Quality Processing engine from Raw to TIFF/Jpeg</td>
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<tr>
<td>SDK for Win and Linux Platforms</td>
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<tr>
<td>Data Centers Processing support</td>
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<td>IX Link for real time control via serial communication</td>
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**PHASEONE**

Specialty Imaging Solutions
EXPANDING THE BOUNDARIES
WITH CUTTING EDGE TECHNOLOGY

THE IXU-RS 100MP SERIES

More Coverage, More Flying Time, More Details
- 11,608 Pixels cross track
- Shutter Lifetime - 0.5 Million cycles
- Exposure time down to 1/2500s
- Capture cycle – 0.6 Sec per Frame
- RS Lenses – 32mm – 150mm

INNOVATIVE SHUTTER TECHNOLOGY
- Direct drive - electromagnetic motor with minimum moving parts, very low mechanical wear
- PWM Control for accurate blade acceleration control
- Real time exposure feedback

PHASE ONE
Specialty Imaging Solutions
PHASE ONE RS SHUTTER SPECIFICATION

• Lifetime of 0.5 Million cycles
• Exposure time down to 1/2500s
• Capture cycle with IXU1000 – 0.6 Sec per Frame
• Capture cycle with IXU180 – 1.25 Sec per Frame
• Supported lenses with 1/2500 exposure time
  • Rodenstock 40mm @ f/4
  • Rodenstock 50mm @ f/4
  • Rodenstock 70mm @ f/5.6
  • Schneider 110mm @ f/4
  • Schneider 150mm @ f/5.6
• Supported lenses with 1/2000 exposure time
  • Rodenstock 90mm @ f/5.6
• Support iXU-RS and IXU-R camera platforms
RS LIFE TIME TESTS

50 shutters were used for reliability testing during the development cycle, in total more than 40M cycles.

Test conditions:
- 2.7 Frames per second
- 5 min idle every 5000 cycles (86% duty cycle)
- Room temperature
- Vertical and 45° position
- Exposure precision verified during test
- Mechanical condition monitored during test

Iris Aperture system life time verified
Test conditions:
- Vertical position
- 2.7 Frames/s
- 86% Duty cycle

Non operating
- 3 Hrs at -30C
- 2 Hrs from -30C to 70C
- 3 Hrs at 70C

Operating
- 3 Hrs from -20C to 60C
- 3 Hrs at -15C
- 1 Hr from -15C to 60C
- 3 Hrs at 60C
SPECIALY DESIGNED SOLUTIONS

4-BAND MULTI-SPECTRAL SOLUTION
- Fully automated workflow for 4-Band 100MP TIFF files generation
- Combining NIR and RGB aerial imagery for diverse agriculture mapping and environment monitoring applications, such as:
  - Crop analysis for growth optimization
  - Vegetation health
  - Estimation of green plants area in support of UN and government incentives, and more
- Animals’ species observation

UAV SOLUTION
- Low weight camera 50-100 MP
- Full and easy integration with enterprise UAV platforms
- Geo-tagged captures
- Advanced location-based triggering
THE MARKET NEED

• Precision Agriculture mapping saves cost and increase yield
  • Mid-season crop health monitoring
  • Mid-field weed identification
  • Direct in-season fertilizer application
• Estimation of green plants area in support of UN and government incentives

All based on Normalized Difference Vegetation Index (NDVI) maps

\[ \text{NDVI} = \frac{\text{NIR} - \text{Red}}{\text{NIR} + \text{Red}} \]
BASIC PRINCIPAL

• Spongy layers on leaf backsides reflect a lot of light in the near infrared, in contrast with most non-plant object.

• Spongy layer collapse in dehydrated or stressed plant and the leaves reflect less NIR light, but the same amount in the visible range.

• Mathematically combining NIR and RGB signals can help differentiate plant from non-plant and healthy plant from sickly plant.
Phase One iXU-R 1000/ iXU 1000 Aerial Cameras

Available as 100 MP NIR versions

- Quantum efficiency of 100MP CMOS sensor allows NIR applications
- NIR version – generate B/W images directly from iXU-1000 RAW files *
- Dual camera system creates true 4-band imagery
- Can use 830nm filter
PICTURE EXAMPLE

RGB + NIR

CIR
OUR FORCEFUL COMPONENTS ENSURE MAXIMUM FLEXIBILITY AND ULTIMATE QUALITY

OUR CUSTOMERS ARE MASTERYING THE ART OF PUTTING IT TOGETHER
Powerline Project done by Russian Customer, Opten Ltd., using iXU1000-RS90
Global coverage incl. 50 distribution & service partners
Phase One Industrial is working closely with our Russian partner NPK Fotonica Ltd from St. Petersburg to support our Russian customer.

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What can we do for you?

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