Trinity™ Pro

The next-generation eVTOL fixed-wing mapping drone

Munich I August 2023

Agenda

QUANTUM SYSTEMS

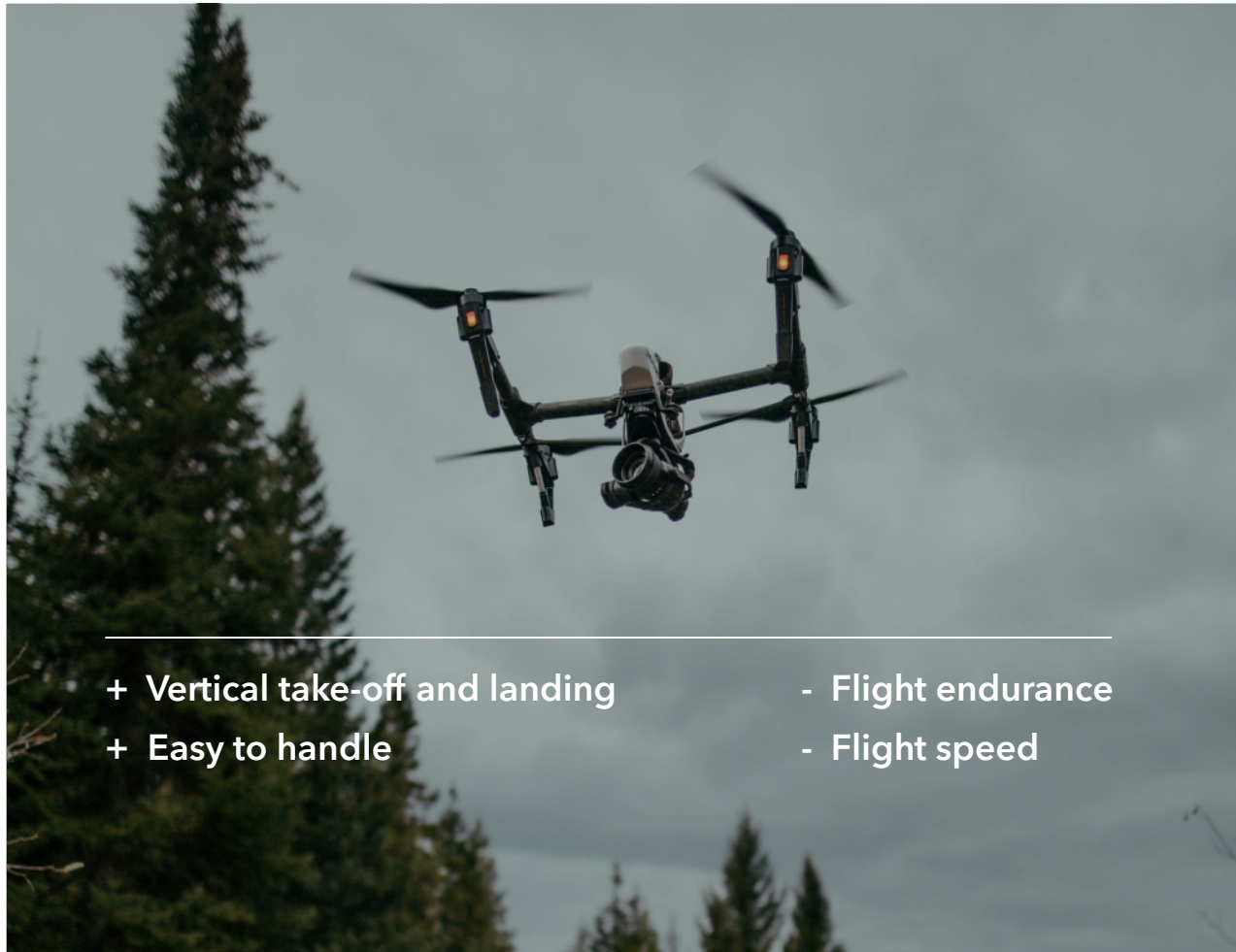
01

QUANTUM SYSTEMS TECHNOLOGY

eVTOL technology

Combining the advantages of fixed-wing and multirotor UAVs

+ Flight endurance
+ Flight speed
- Not so easy to handle and control
- Additional equipment needed for take-off and landing



+ Vertical take-off and landing
+ Easy to handle
- Flight endurance
- Flight speed

Tron first product with QS eVTOL technology

Combining the advantages of fixed-wing and multirotor UAVs

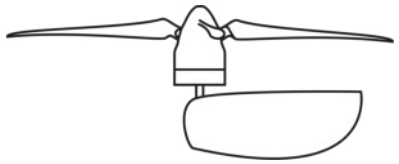
+ Vertical take-off and landing
+ Easy to handle

+ Flight endurance
+ Flight speed

Quantum Systems eVTOL innovation

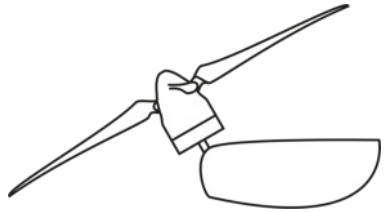
A unique and patented aircraft design

Patent Number
DE201210104783



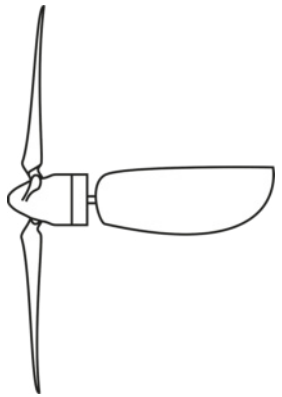
Take-off and landing

During take-off and landing all motors are in vertical position. The front motors are optimized for hover and climb.



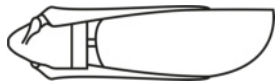
Transition phase

In transition phase when reaching flight altitude all motors tilt downwards in horizontal position for cruise flight mode.



Cruise flight

In cruise flight mode only the rear motor operates at a highly efficient low power cruise setting.



Parking position

During cruise flight, the front motors take the parking position. When not in operation, all motors take the parking position.

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Sophisticated Hardware

Construction and mechanics are geared to an easy-to-use solution

Quantum-Skynode Autopilot

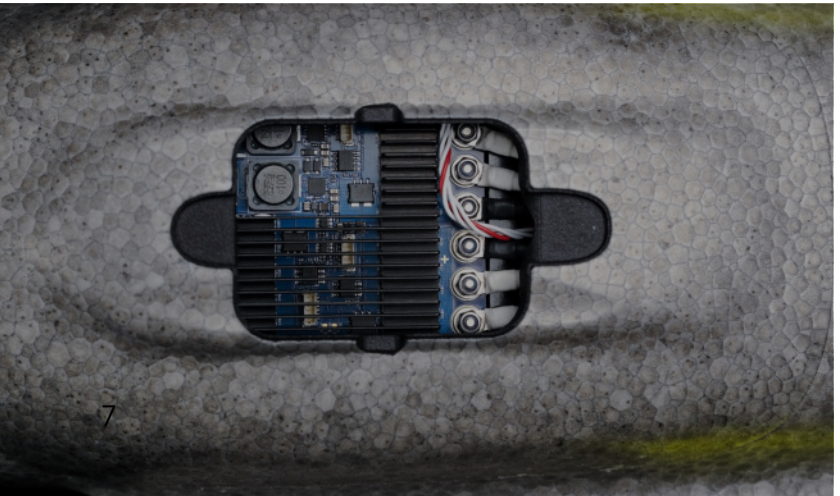
- Linux mission companion
- Computing power onboard
- Internal storage
- Enhanced connectivity
- AI readiness

Modular Construction

- Plug and play design
- Quick lock mechanism
- Efficient aerodynamics

Survey Grade Geotagging

- GNSS reference station included
- Stored on microSD card
- Reducing positioning errors



Proprietary Software

QBase 3D mission control forms an integral part of the system

Simple mission settings and planning

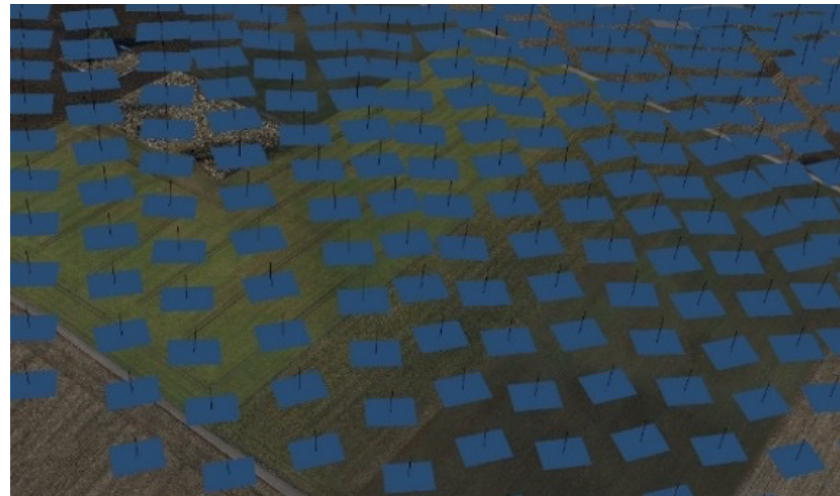
- Convenient setting of mission parameters
- Safe 3D planning
- Automatic generation of flight paths
- Short set-up times

Real-time flight and aircraft data monitoring

- 3D live viewing
- Terrain following
- Live-air-traffic

Efficient field and desk operations

- Easy export of PPK processed data
- Direct compatibility with Pix4D, TBC, Propeller, etc.
- Guaranteed accuracy of 2-5cm



02

TRINITY PLATFORM

The evolvement of the Trinity family

A stable and aerodynamic structure

First Generation Trinity

Trinity F9

Trinity F90+

Trinity

A market leading eVTOL platform

2017
Market Launch

75,000+
Total Flight Hours

45+
Countries

160,000+
Total Flights

30+
Software / Firmware Revisions

80+
Resellers Worldwide

Asta Jaya

Head of Remote Sensing, PT. Musi Hutan Persada, Indonesia

“We have been using our Trinity since October 2020 and have already completed over 1,000 flights and almost 1,000 flight hours with it. The device is robust, easy to use and easy to maintain. The fast response time and support from the local customer service, which speaks our language, should also be emphasized.”

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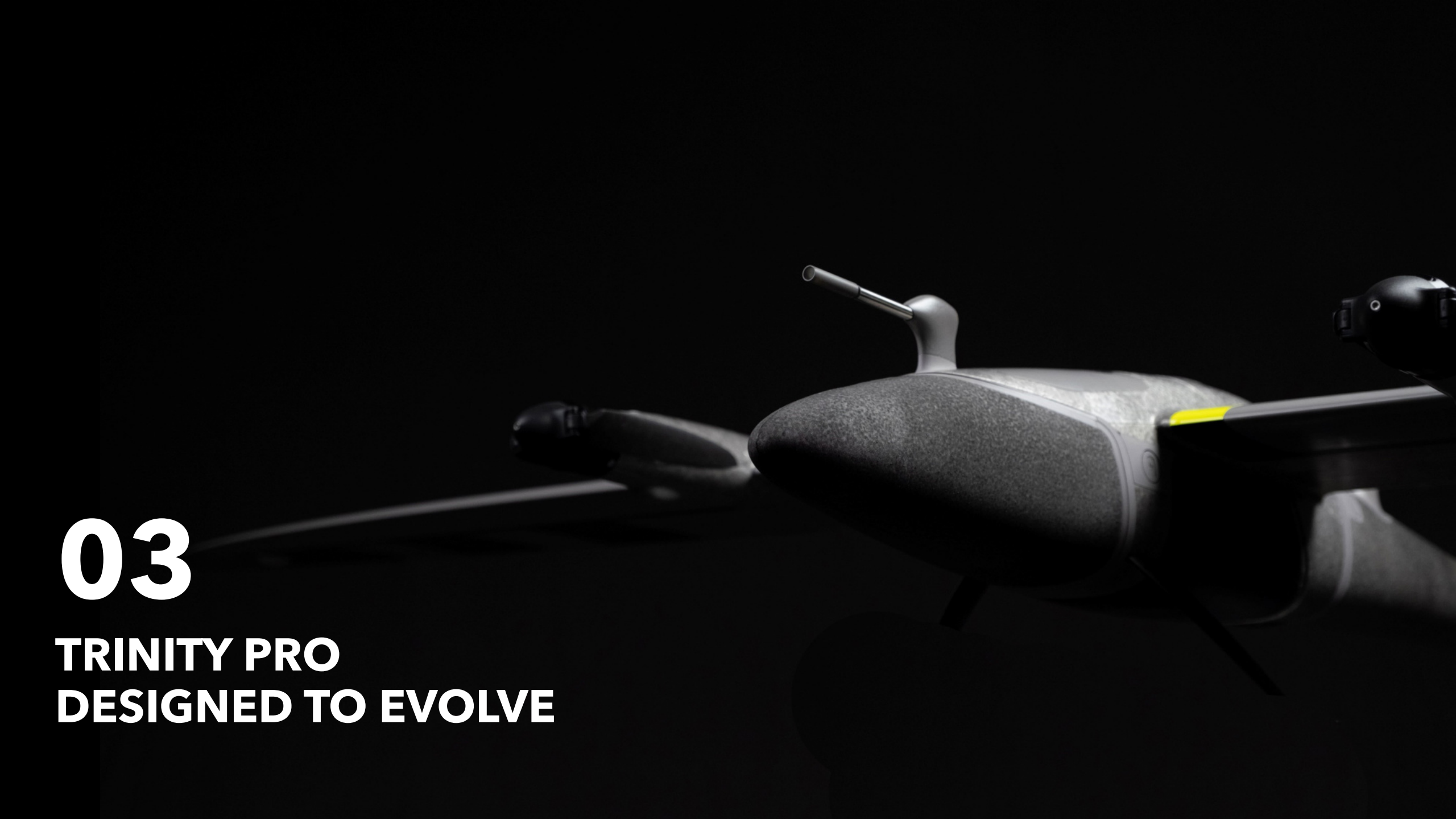


03

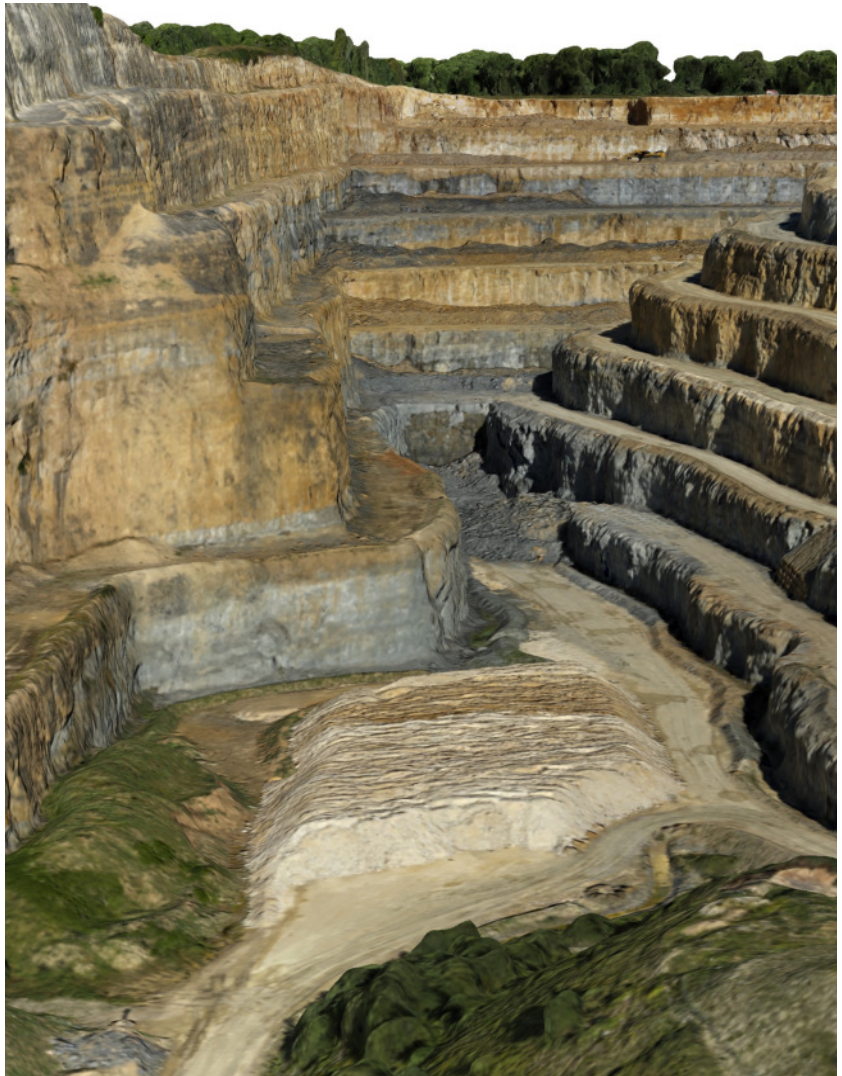
TRINITY PRO
DESIGNED TO EVOLVE

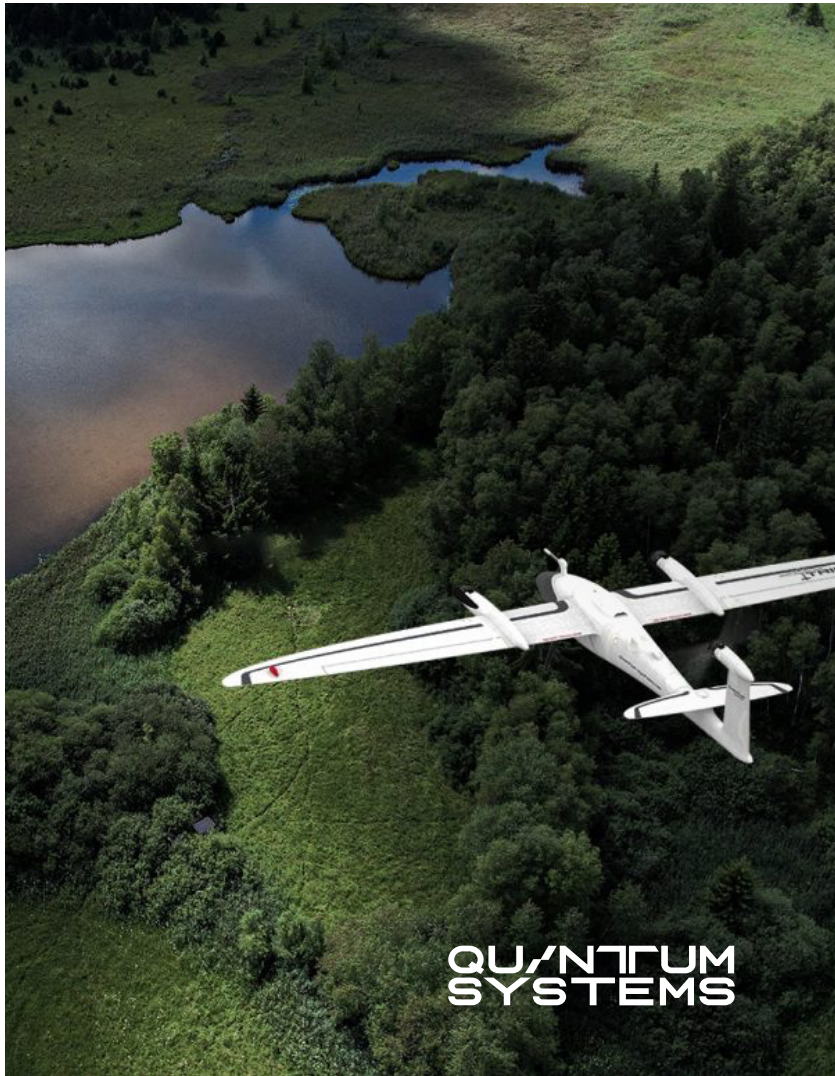
Trinity Pro

Designed to evolve

Gradual improvements in the industry

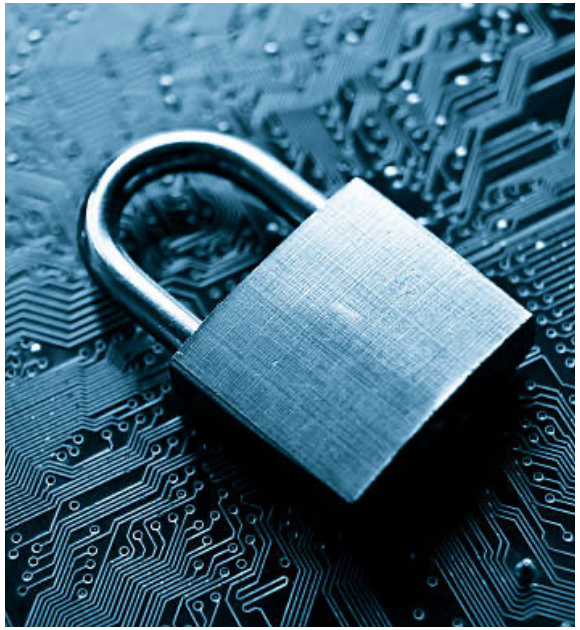
On all platforms over the past 10 years





Addressing customer challenges

Trinity Pro is resolving common pain points.



1. Products get outdated too quickly.

2. Product are not easily adopted by the staff.

3. Products cost too much in maintenance and downtime.

4. Products are limited in applications.

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Value Proposition

What we promise

Trinity Pro is built as a future-proof platform for growth, offering a reliable, flexible and scalable solution for your changing requirements.
Without compromising ease of use and safety.

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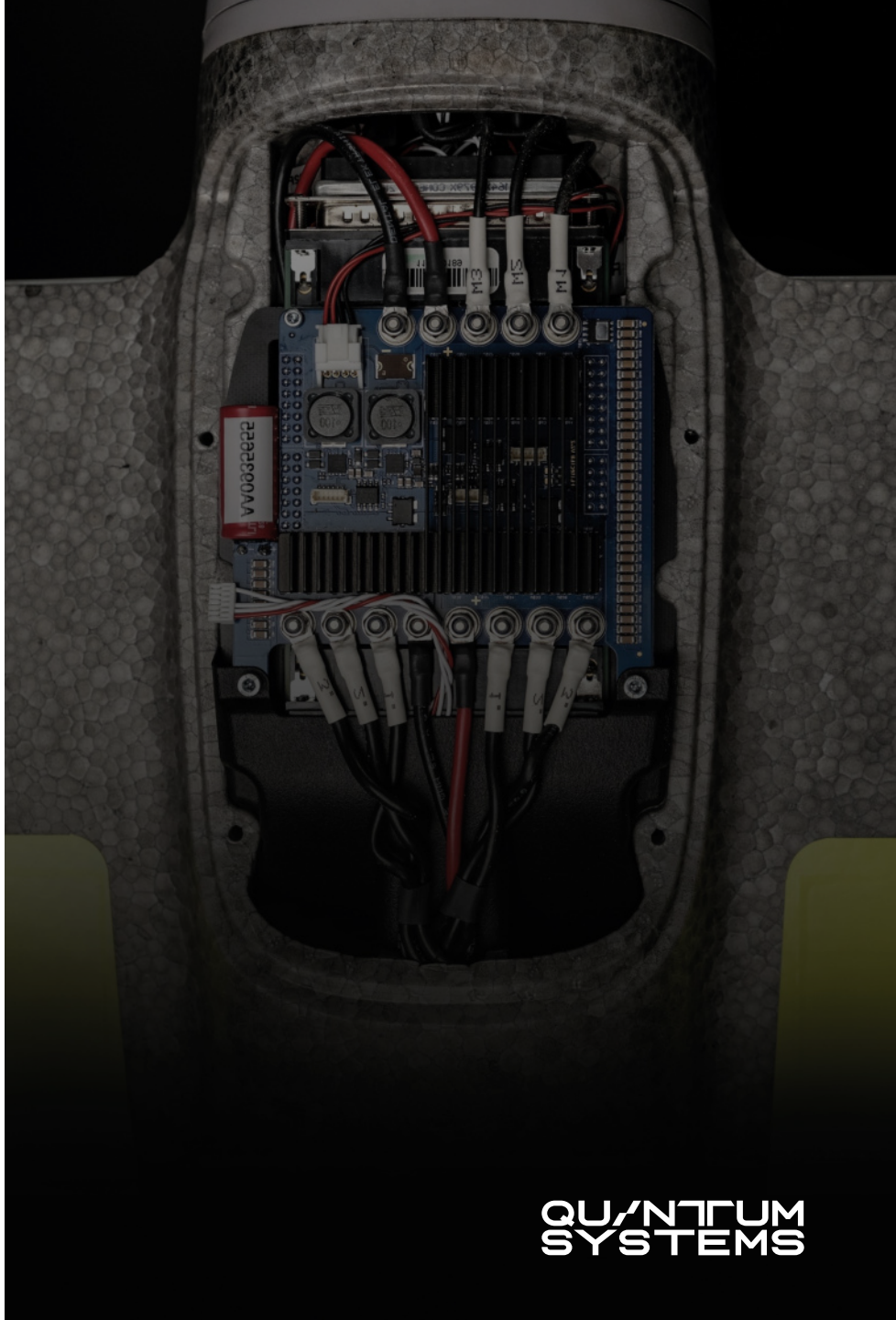
Quantum-Skynode

Making Trinity Pro future-proof

New generation autopilot with companion board:

- Extra processing power onboard
- Increased internal storage
- Enhanced connectivity
- Enabling preventive maintenance
- Augmenting safety features
- AI readiness
- Easy downstream integration of next-gen cameras



Optimized Usability

Trinity Pro is safe and easy to use

QBase 3D core and autopilot capabilities accomplish missions with ease:

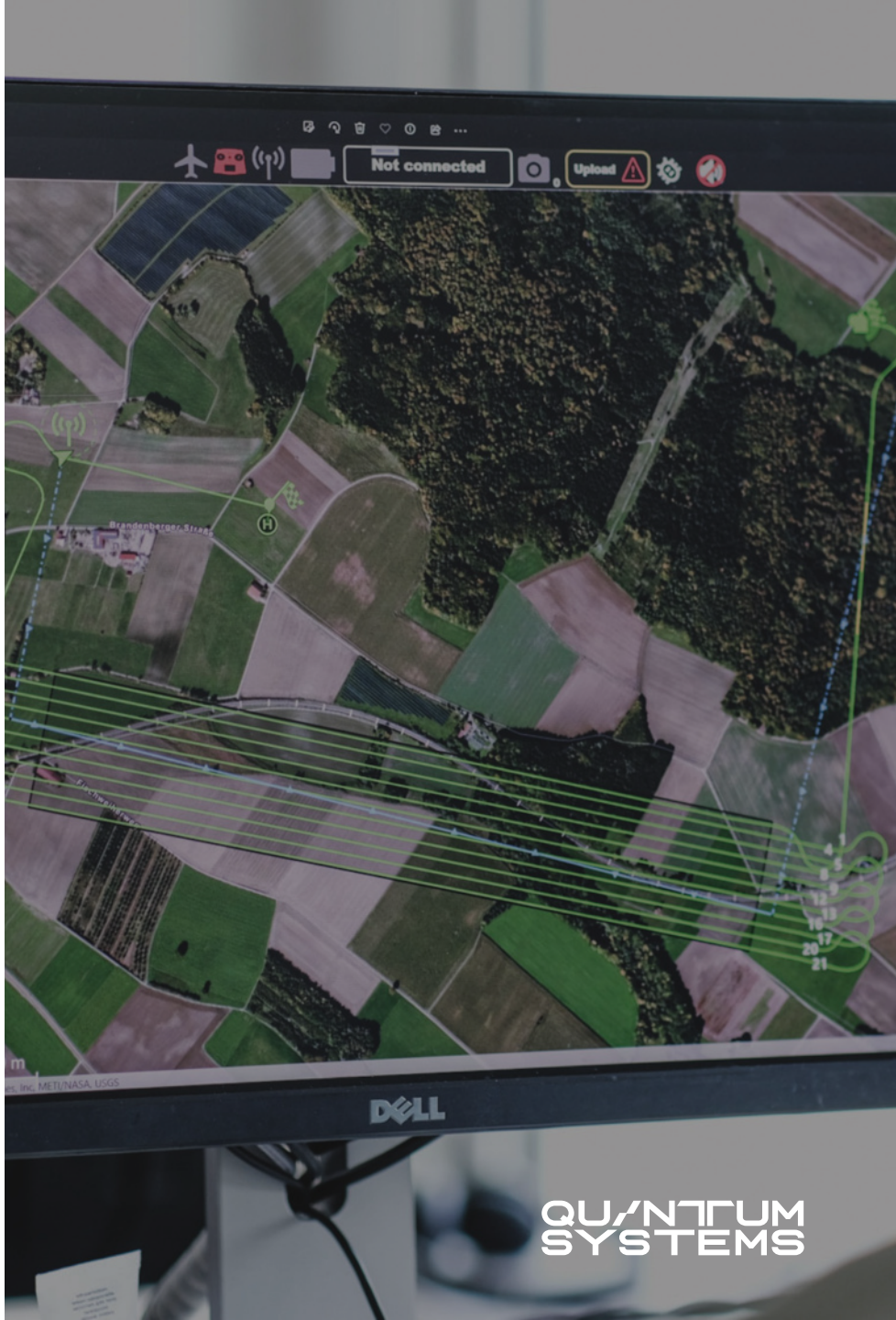
- Improved mission planning
- Redesigned UX/UI
- Intelligent pre-flight check
- Simplified take-off and landing
- Streamlined file management
- Quick turnaround time
- Auto safe return

Expanding Opportunities

Trinity Pro grows with your business

Performance that adapts to new missions and challenging environmental conditions:

- Largest range of “plug and play” sensors
- Drone-based LiDAR technology
- Real corridor mapping (A/B missions)
- Safe remote landing
- IP 55 rating for rain and dust
- Heightened take-off and flight altitude
- Strengthened wind tolerance

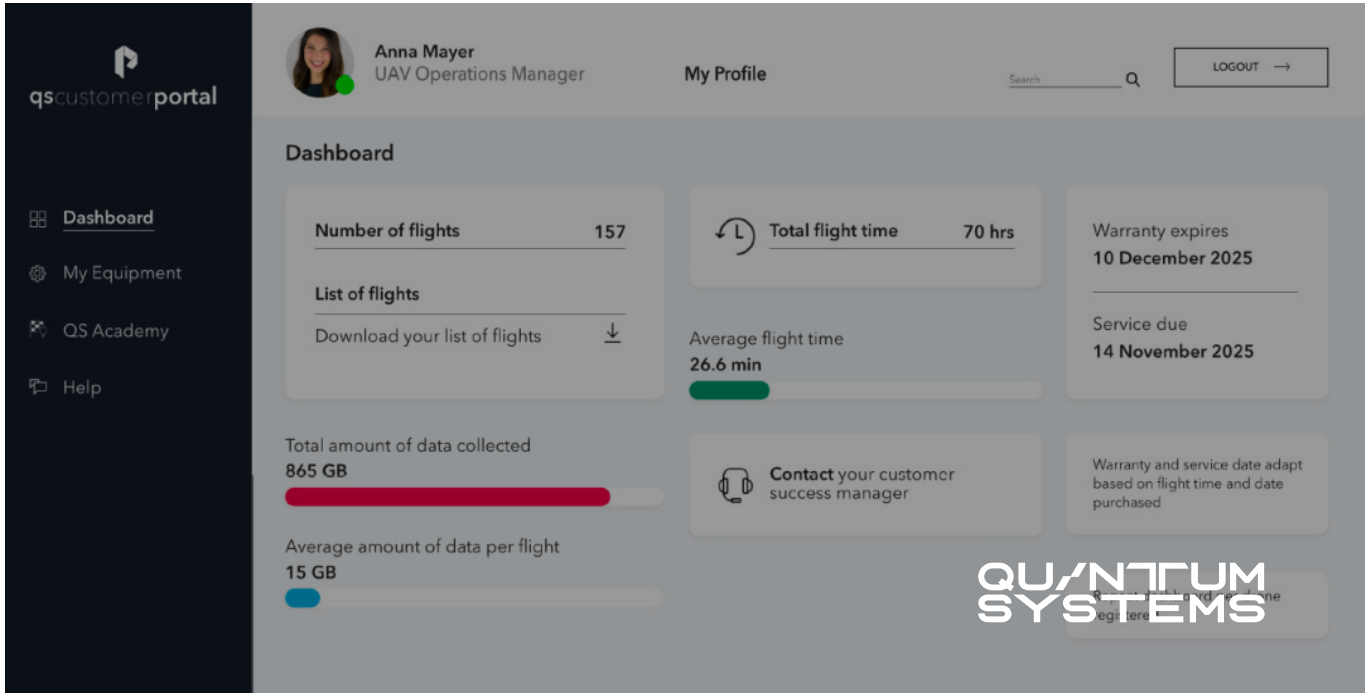


Maximizing Outcome

Trinity Pro is a high uptime system

Robust hardware and smart software keep downtime to a minimum:

- Enhanced self-system monitoring
- Intelligent pre-flight check
- Real-time monitoring in flight
- Easy repair through modular set-up
- Customer Portal



04

PRODUCT PARAMETERS

Increased Performance

Technical Data

Design

Structure

Electronics

Specification Increase

Wind Capabilities

Transitional Altitude

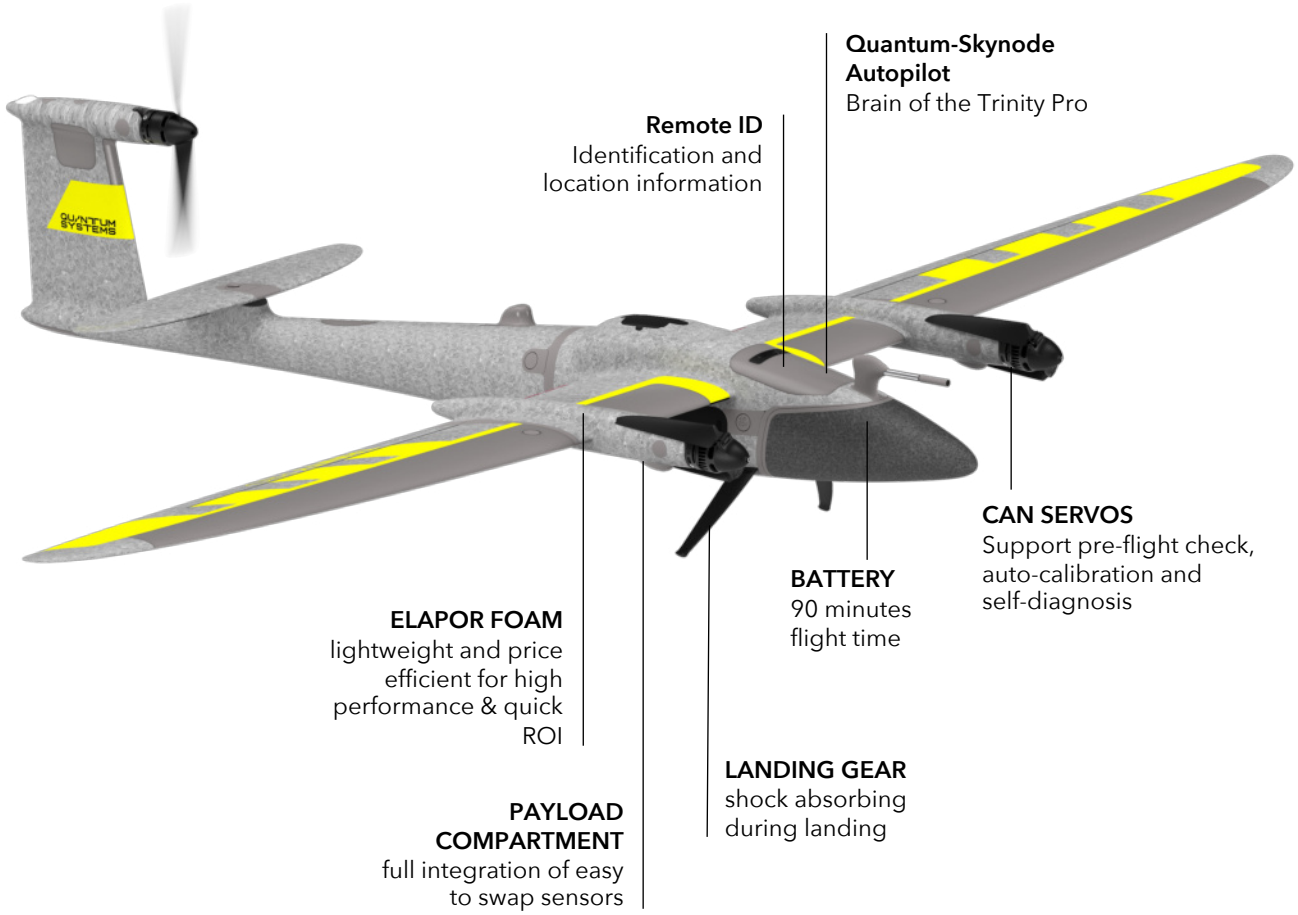
Max. Ceiling

Trinity Pro

Technical Data*

Max. Take-off Weight	5.75 kg (12.68 lbs)
Max. Payload	1 kg (2.2 lbs)
Max. Flight Time[1]	90 min
Max. Take-off Altitude	4,800 m (15,748 ft)
Max. Flight Altitude	5,500 m (18,045 ft)
Optimal Cruise Speed	17 m/s (33 kn)
Ingres Protection Rating	IP 55
Operating Temperature	-12 to +50 °C (10.4 – 122°F)
Command + Control Range	5 - 7.5 km (3.1 – 4.7 mi)

Wind Tolerance	
Hover Phase (Take-Off/Landing)	11 m/s (21.4 kn)
Continuous (Cruise) [1]	14 m/s (27.2 kn)
Gusting (Cruise) [1]	18 m/s (35 kn)



*Always refer to the user manual for technical limitations of certain configuations.
[1] Subject to export regulation.

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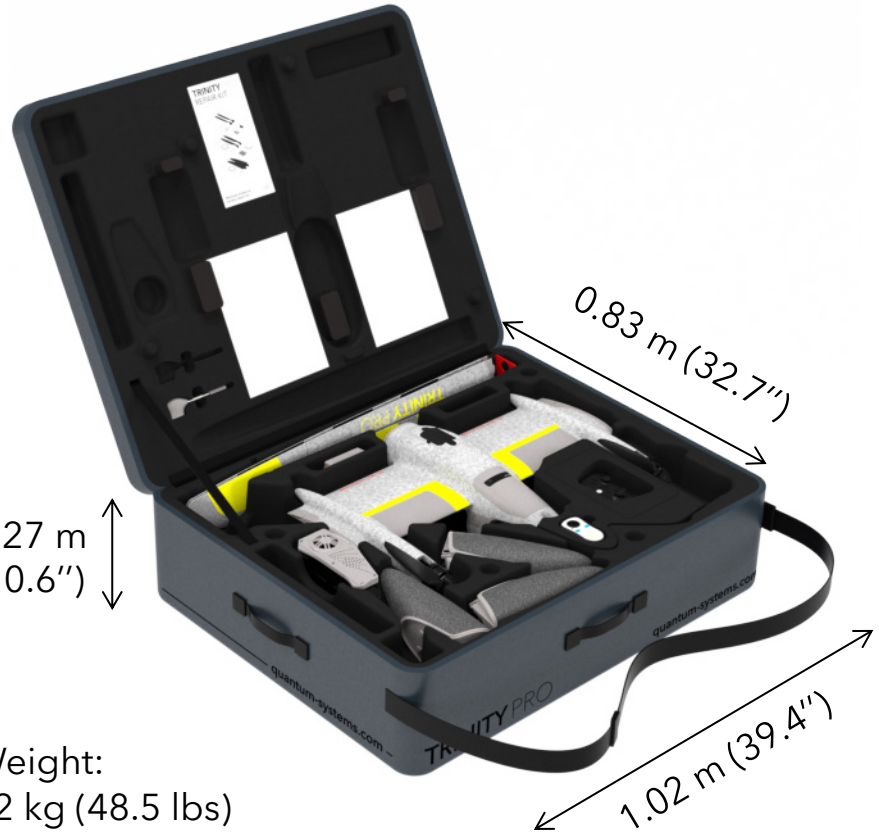
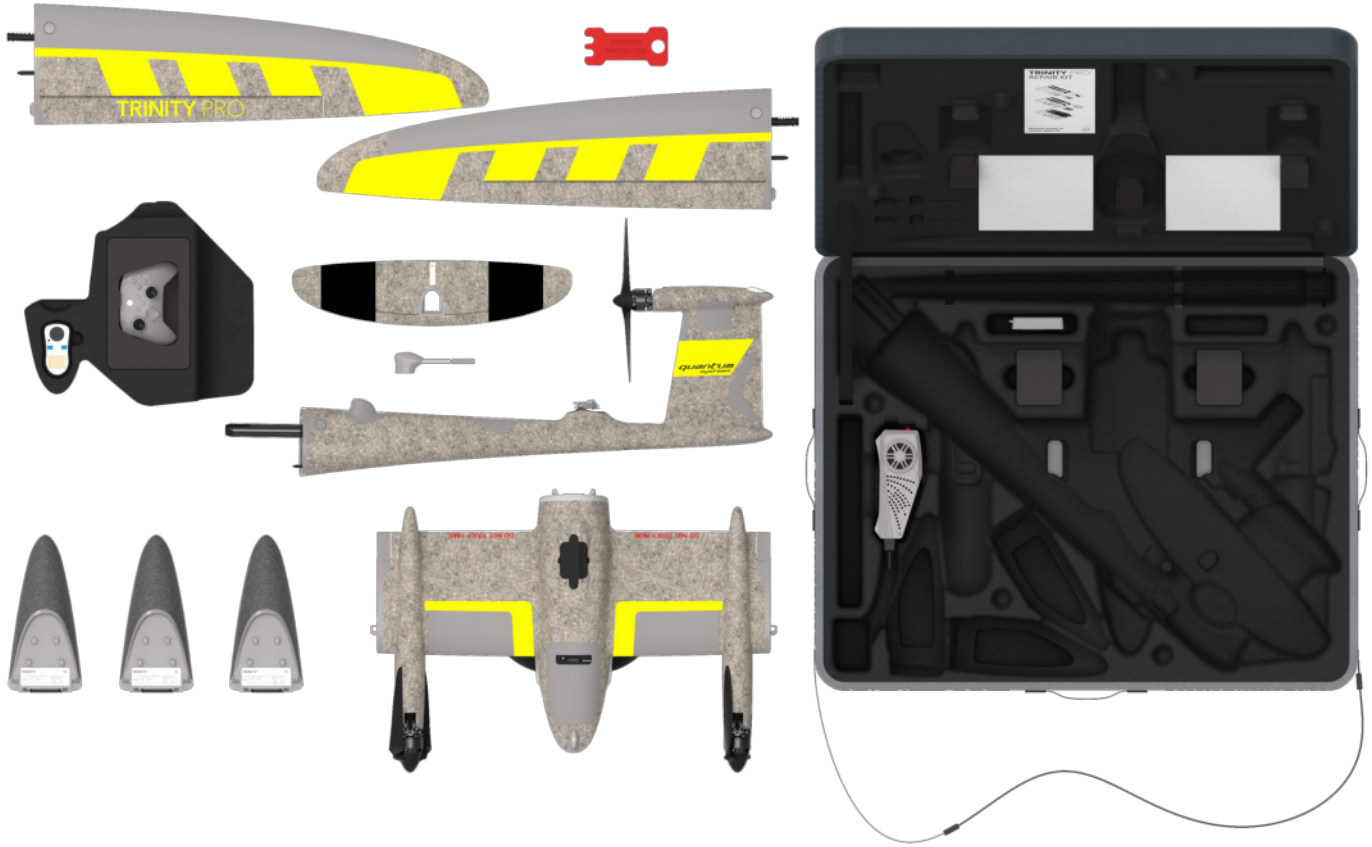
Delivery scope

What's in the box



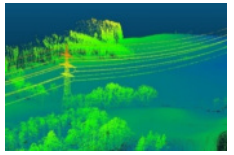
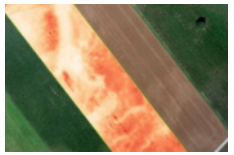
Weight:
22 kg (48.5 lbs)



QUANTUM SYSTEMS

Cameras

Fully integrated, easy to swap for various applications

	Spectral channels	Ground sample distance	Sensor resolution	Output
 Sony RX1 RII	RGB	1.29 cm @100m AGL	42.4 MP	
 Oblique D2M	RGB	1.50 cm @100m AGL	26 MP per sensor 130 MP total resolution	
 Qube 240 LiDAR	LiDAR	Point density @100m AGL: 50-100 points per m²		
 MicaSense RedEdge-P	RGB NIR RE, Panchromatic	@120m AGL: 7.7 cm (per MS band) 3.98 cm panchromatic band	1.6 MP per MS band 5.1 MP panchromatic band 5.1 MP global shutter, aligned with all bands	
 MicaSense Altum-PT	RGB NIR RE, panchromatic LWIR: 7.5-13.5um	@120m AGL: 5.28 cm multispectral 33.5 cm thermal 2.49 cm panchromatic & pansharpened	3.2 MP per MS band 12 MP panchromatic band 12.4 MP global shutter, aligned with all bands	

QUANTUM SYSTEMS

05

APPLICATIONS

Key Applications

Target industries and applications for Trinity Pro

Progress Monitoring
Mining

Powerline Inspection
Utilities

Pipeline Monitoring
Civil Survey

Cadaster
Civil Survey

Coastal Monitoring
Civil Survey

Road / Rail Survey
Civil Survey

Post Disaster Mapping
Civil Survey

Weed Management
Agriculture

Feed Biomass
Agriculture

Disease / Pest Management
Agriculture

Crop Health
Forestry

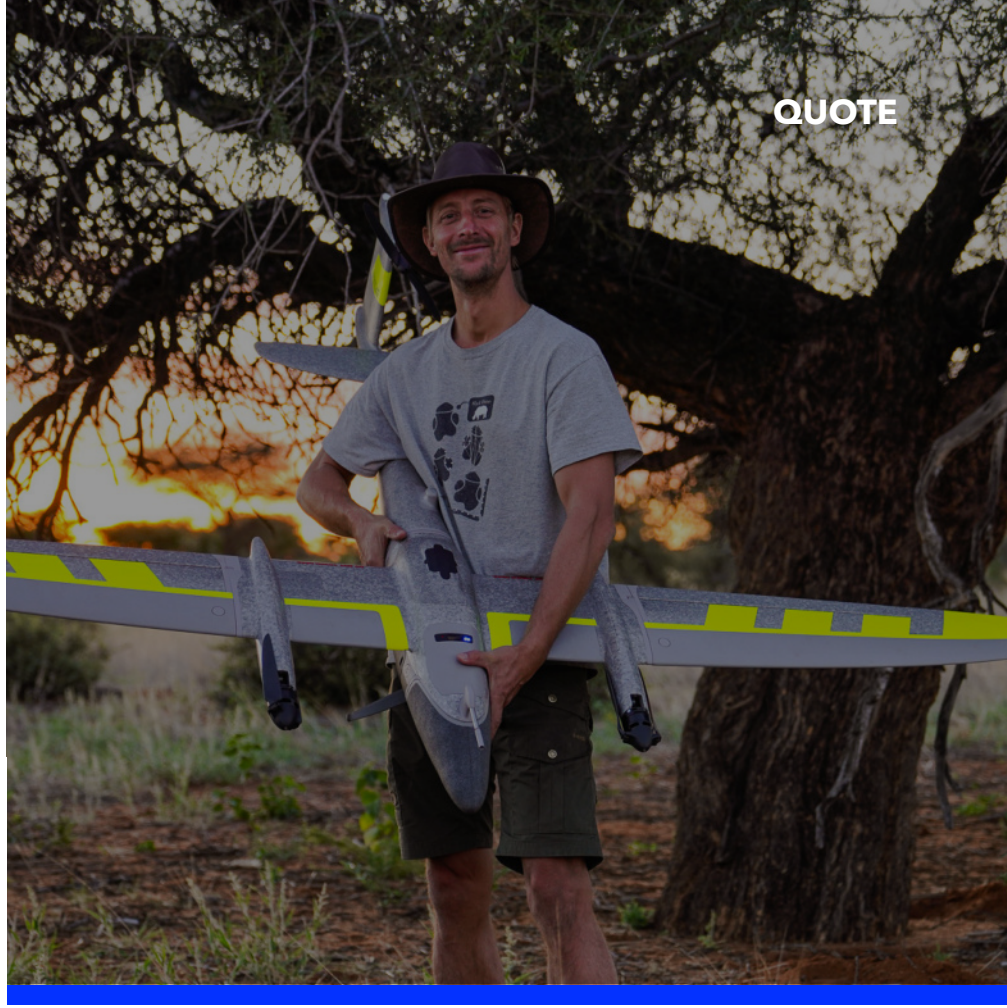
Inventory
Forestry

QUANTUM SYSTEMS

BEREND REINHARD

Managing Director, Kuzikus Wildlife Reserve, Namibia

“As a conservation professional myself, working with securing the future of Black Rhinos on a daily basis, I am extremely excited to have experienced what the new Trinity Pro from Quantum Systems brings into the field of conservation. Mapping 10,000 hectares at 3-centimetre resolution in one and a half days, the Trinity Pro presents to me a complete game-changer in Rhino monitoring. It empowers me to create a quick, near real-time updates of all black rhinos on the reserve in a fraction of the time previously needed. I was also particularly impressed by the robustness of the Trinity Pro dealing with the harsh Kalahari environment”.



QUANTUM SYSTEMS

06

CONCLUSION

Take Away

Trinity Pro is designed to evolve

Trinity Pro is designed to adapt to changing requirements with evolving capabilities and to accelerate decision making through aerial data that matters.

As technology evolves, so will the Trinity Pro.

Thank you

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