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# INFINITE BLUE MISSION BOOKLET

### Mission name: Infinite Blue Carrier name: ION SCV006 Thrilling Thomas

**Fino Mornasco, Italy, May 25, 2022: D-Orbit**, the space logistics and orbital transportation company in the process of going public through a transaction with Breeze Holdings Acquisition Corp. (NASDAQ: BREZ), today **launched Infinite Blue** aboard SpaceX's Transporter-5 mission. Infinite Blue is the **sixth commercial mission** for D-Orbit's proprietary orbital transfer vehicle (OTV), **ION Satellite Carrier (ION).** 

The Falcon 9 rocket lifted off today, May 25, 2022, at **14:35 EDT** from **the Space Launch Complex 40 (SLC-40)** at Cape Canaveral Space Force Station (CCSFS), Florida. ION, a versatile and costeffective OTV designed both to precisely deploy satellites and perform technology demonstrations of third-party payloads in orbit, was successfully deployed 1h 9m 22s after lift-off into a **525-kilometer Sun Synchronous Orbit (SSO)**.

"We are thrilled to have successfully launched our sixth commercial ION mission," said **Renato Panesi, Ph.D., D-Orbit's Chief Commercial Officer**. "We are continuing to ramp up our launch schedule and expand our client base while steadily progressing along our roadmap. I'm proud of our proven technology, our team, and the amazing milestones we are achieving together, mission after mission".

With the launch successfully completed, D-Orbit's mission control team is executing the mission's **Launch and Early Orbit phase (LEOP)**, performing a series of health check procedures in preparation for the operational phase.



### A note about the name of the satellite carrier

The name of the satellite carrier is "ION SCV006 Thrilling Thomas", a combination of the acronym "ION", which stands for "InOrbit NOW", the acronym "SCV," which stands for "Space Carrier Vessel," and the satellite's first name. This format follows the naming conventions of naval vessels used in navies around the World. The name "Thomas" was drawn at random from a bowl containing the names of all D-Orbit's employees. The company will continue to follow this procedure in the future to honor the skills, energy, passion, and commitment of its people.





# BROWN UNIVERSITY

Name of payload: SBUDNIC

Form factor: 3U

POC: Rick Fleeter rick\_fleeter@brown.edu Lorenzo Bigagli lorenzo.bigagli@cnr.it

SBUDNIC is a 3U CubeSat launched to contribute to ongoing efforts proving the accessibility of space by building a replicable device cheaply and quickly.

The goal of SBUDNIC is to successfully design and test novel low-cost solutions to expensive problems - in accordance with this objective the following is on board: primary cell lithium metal batteries (AA Energizer), an Arduino board with a redundancy system, a dual material (epoxy, Kapton) thermal system that can maintain a range of 20 degrees Celsius, and a novel drag deployment system. Further, SBUDNIC uses a transcontinental, remotely operated, Raspberry Pi based ground station.

SBUDNIC is primarily a proof of concept - from conception to launch, the project has taken approximately one year. SBUDNIC originated in ENGN 1760: Design of Space Systems, Professor Rick Fleeter's course on engineering at Brown University through collaboration with Dr. Lorenzo Bigagli from the Institute on Atmospheric Pollution of the National Research Council of Italy (CNR-IIA). Since then, it has garnered attention and support from NASA's RISG program, AMSAT-Italy, Sapienza University of Rome, Arduino, Energizer, and D-Orbit.

The satellite is built on an aluminum chassis and contains a fish-eye camera lens on opposite sides of the satellite. These fish-eye cameras will allow to create panoramic views of space from the satellite, which will be promoted on social media. The satellite's ability to collect and transmit these photos to our ground station will require all its components to successfully work together. After its mission is complete, SBUDNIC will deploy a drag sail to deorbit itself.

A lack of time and money currently deter many; however, by working to reduce the cost associated with space and create quicker, replicable solutions, more will be able to further explore space. All the data and work will be open source. Further, the team is committed to educational outreach and is working to spread project information via social media, sponsorship campaigns, and school partnerships. Since the entire satellite project follows the Open Architecture philosophy, it is hoped that future engineers will be able to take inspiration from SBUDNIC to advance space exploration in universities, research, and industry.

### **COMPANY PROFILE - BROWN UNIVERSITY**

Website: www.brown.edu

Brown University serves as a space for top thinkers and creators to come together to further their pursuits of knowledge. It was founded in 1764 and serves as a top tier research institution, earning its spot in the prestigious Ivy League. The institution is known for its Open Curriculum and cross curricular work; the SBUDNIC team was designed around these ideals and, as such, has a diverse collection of background disciplines - from Engineering and Chemistry to Political Science and International Relations - represented.

### COMPANY PROFILE - NATIONAL RESEARCH COUNCIL (CNR)

Website: www.cnr.it/en

The National Research Council (CNR) is the largest public research institution in Italy. Articulated in 102 Institutes, its mission includes performing multi-disciplinary research, promoting the internationalization of the national research system, promoting industrial innovation and competitiveness, and transferring technologies and solutions to emerging public and private needs. The Institute on Atmospheric Pollution focuses on knowing and understanding air quality to act towards decarbonisation and sustainable development to protect future generations.





Name of payload: Guardian

## AISTECH

Form factor: 6U

POC: Paulina Arteche paulina.arteche@aistechspace.com

Aistech's Guardian nanosatellite carries a multispectral telescope designed by Aistech and equipped with visible (RGB), near infrared (NIR), and thermal infrared (TIR) sensors. The imaging payload is focused on commercial services addressing markets linked to environmental sustainability.

"Our mission is to work with organizations around the world to tackle critical threats to people and the environment, and build a better, more sustainable future for the next generation," said Guillermo Valenzuela, CEO and Co-Founder of Aistech Space. "Our Guardian satellite will provide organizations with critical information for mitigating large-scale threats, such as forest fires, water waste, pollution, and illegal activity."

#### COMPANY PROFILE Website: www.aistechspace.com

Aistech Space is a global space technology company that combines its expertise in geospatial analysis with its own constellation of small satellites to provide solutions that help clients manage their assets and monitor environmental threats. Aistech will be launching one of the first commercial constellations capable of taking high-resolution thermal images on demand this year. Aistech provides a new perspective of Earth's changing resources and tackles critical threats to people and the environment to build a better, more sustainable future for the next generation.







Form factor: 1U

POC: Yonatan Winetraub yonatan@cryptosat.io

The idea behind Cryptosat — which was first outlined in a November 2017 paper — is to build a prototype nanosatellite the size of a coffee mug and launch it into outer space, where it can act as a perfectly isolated and secure cryptographic module.

Cryptosat can act as a trusted party for a whole host of cryptographic applications, such as electronic voting, a trusted random beacon, verifiable delay enforcement for smart contracts and many more. The satellite could be used as a trusted validator or timestamping authority for copyright purposes. The infrastructure can also interact with other blockchains and validate them in the same way that some private chains sync occasional blocks with public chains like Ethereum to prove that the ledger is trustworthy.

Cryptosat can launch to orbit the Earth, providing blockchain infrastructure that can be used for everything from mining to timestamping documents.

"We at Cryptosat see this launching opportunity with D-Orbit as a perfect opportunity to demonstrate our first cryptographic capabilities in space on a strong and gualified platform such as the ION. We want to thank D-Orbit for their quick response and excellent engineering, which allowed this opportunity to occur." (Elad Sagi, Space System Lead).

#### COMPANY PROFILE Website: www.cryptosat.io

Cryptosat's mission is to build satellites that power cryptographic, blockchain, and ledger applications. By placing a root-of-trust in space, Cryptosat guarantees ultimate trust and transparency. According to Cryptosat, space is perfectly suited for hosting secure applications by virtue of its being physically inaccessible. Cryptosat's technology powers a wide range of applications from blockchain to electronic voting and offers to revolutionize the cyber security industry by harnessing the unique properties of space that are literally out of this world.



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**GENERG** 

Name of payload: Gen01

Form factor: 2U

POC: Luca laboni luca.iaboni@genergo.energy

Genergo's Gen-01 payload consists in a completely new type of space propulsion system developed to further push the boundaries of what is possible in space travel.

The attitude and orbit evolution of the ION Satellite Carrier will be analysed and controlled to test the functioning of the Genergo engine.

Politecnico di Milano (a top-ranked Italian university according to QS World University Rankings, reaching the 9th position worldwide in the specific subject Engineering – Mechanical), Department of Aerospace Science and Technology, is responsible for the modelling and definition of the in-orbit experiment.

#### COMPANY PROFILE Website: www.genergo.space

Genergo's engine is aimed at introducing several game changing factors in the space propulsion market, including low energy consumption, complexity reduction, substantial weight and size savings, longer duration, non-polluting and eco-friendly components.



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Photo credit: Genergo





