NL SPACE

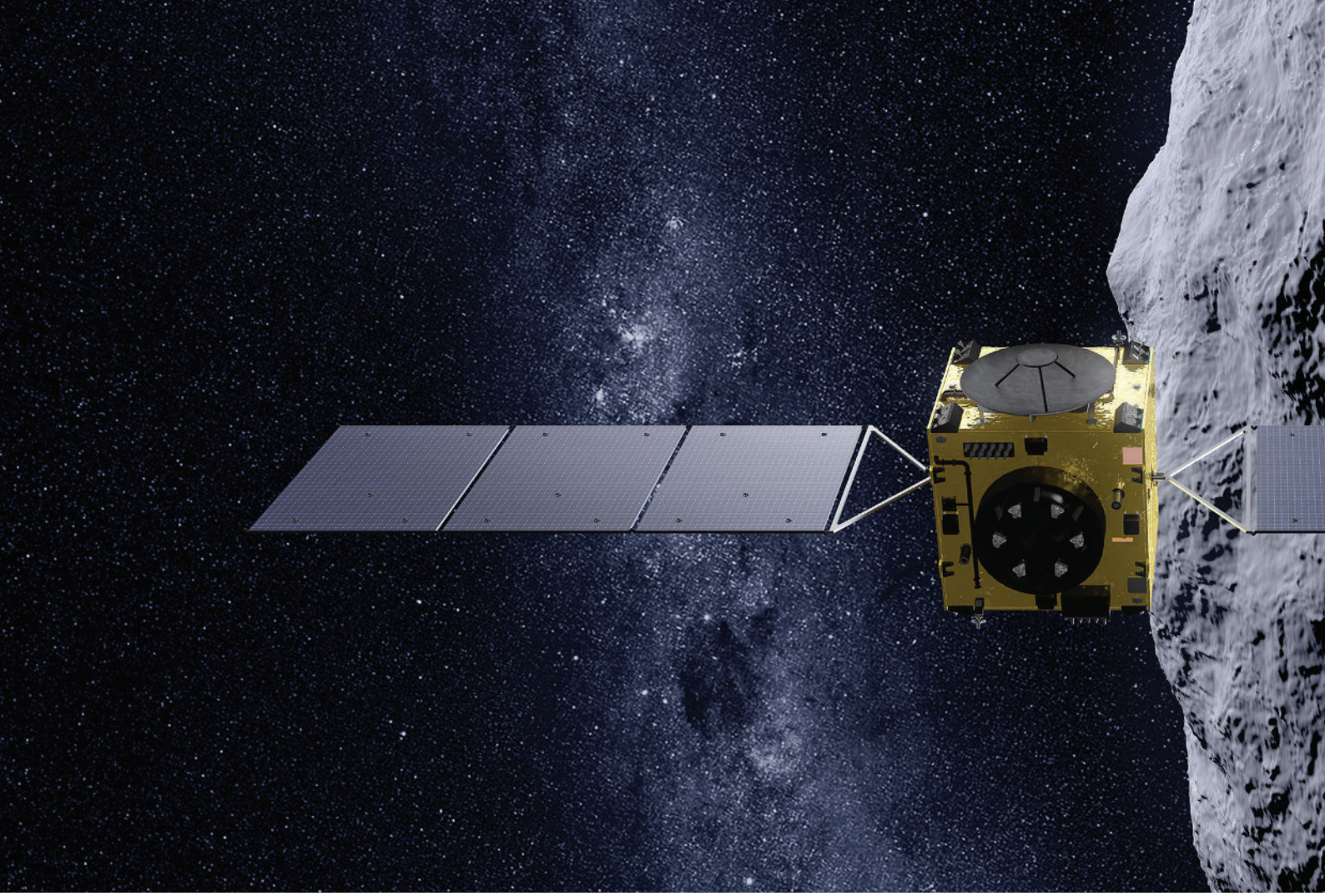
Global Challenges, Netherlands Space Solutions

39TH SPACE SYMPOSIUM

8 - 11 APRIL, 2024, COLORADO SPRINGS

FIND **NL SPACE** AT **BOOTH 641**

NORTHROP GRUMMAN EXHIBIT CENTER, SOUTH HALL



NL Space

Space is ever more of vital importance in our daily lives. Companies and institutes from The Netherlands are leaders in specific niches in space technology, satellite applications and space science. The space ecosystem in the Netherlands is optimally tuned to provide key knowledge, knowhow, products, and services for the space challenges of the future. The space ecosystem in the Netherlands, NL Space, is a closely connected group of agile organizations that provides customers and development partners with optimal solutions, both for civil and defense space solutions.

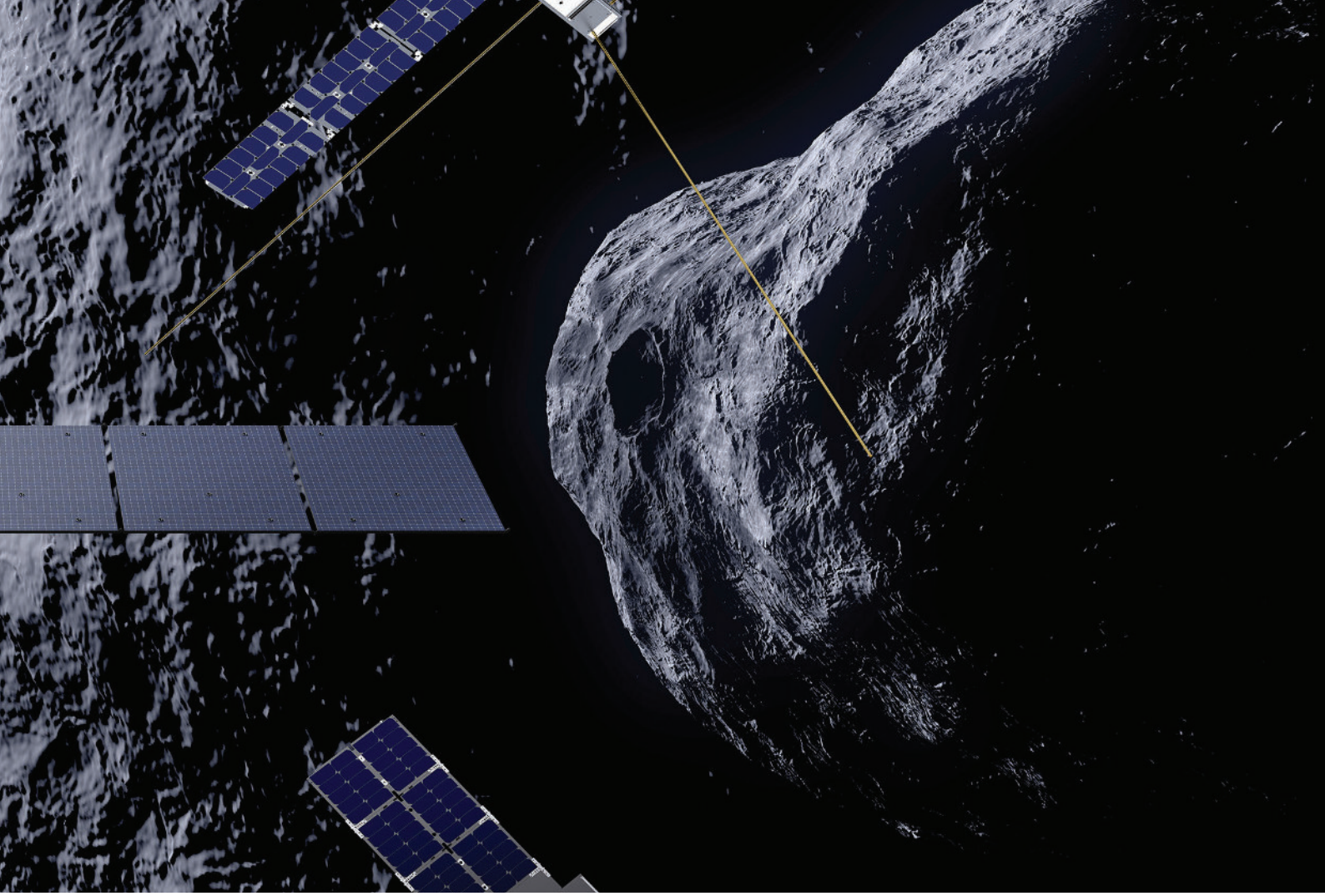
Our flexible and pragmatic way of working makes NL Space a great partner and teamplayer for both companies and government organizations in the space domain.

"GLOBAL CHALLENGES, NL SPACE SOLUTIONS"

The Dutch delegation at the 39th Space Symposium

The Dutch delegation consists of directors, lead engineers and business developers of the Dutch space sector, representatives of the Netherlands Ministry of Defense, the Netherlands Space Office (the governmental Space Agency of the Netherlands), and the Netherlands Innovation Network.

Defense and industrial base cooperation among allies and partners is now more important than ever. We need strong relationships between our governments and robust partnerships between our defense and space industries. The entire ecosystem matters. With guidance by leading professionals and senior representatives from government, industry and academia, the Dutch delegation presence at the Space Symposium represents the broad capabilities and possibilities The Netherlands has to offer!



Partners for International Business

Together with organizations from the Dutch Space and Defence industry, the Netherlands Ministry of Foreign Affairs, the Ministry of Economic Affairs and Climate Policy, the Ministry of Defence, the Netherlands embassy in Washington and the Netherlands consulate-general in San Francisco, we have formed a partnership, **Partners for International Business (PIB)** called **"Netherlands industries for cooperation with US space industry"**.

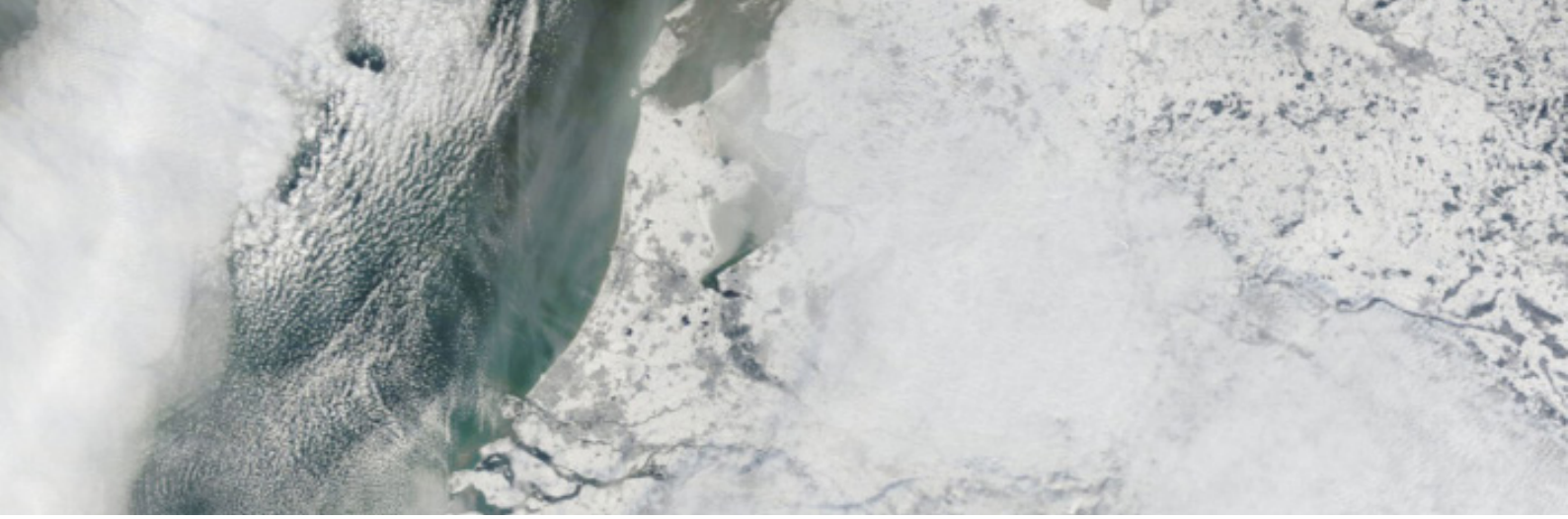
As the US is an important market for many Dutch organizations, the main objectives of this partnership is to develop long-term partnerships, sign MOUs, participate in trade fairs, set up network events, and organize trade missions. The American market is dynamic, and many players are accustomed to continuous dialogue with suppliers and partners. The PIB supports the participating parties in realizing a better presence in the US, from which new opportunities can be created.

The companies and institutions involved in this partnership form an important and complementary part of the supply chain in the Netherlands. From knowledge institutions, technology companies, equipment and systems suppliers, to data processing companies. Dutch companies and institutes are known for laser communication technology, the development of small satellites, innovative satellite applications, among other things.

The Dutch Ministry of Defence has announced its own space agenda and launched its first satellite in 2021 amid great interest from the US. The commander of the US Space Force visited the Netherlands in July 2021, and collaborations between the Dutch and US armed forces on space are intensifying.

In this PIB, organizations active in the civil and military space market are working together. Uniquely, the strength of the cooperation between the companies from the civil and military sectors creates a synergetic effect!

"NETHERLANDS INDUSTRIES FOR COOPERATION WITH US SPACE INDUSTRY"



FRANK CARIS

Honorary Consul of the Netherlands

Frank is the Honorary Consul of the Netherlands, based in Colorado Springs, covering Colorado, New Mexico, and Wyoming. In this role he is both assisting citizens and companies from the Netherlands with their endeavors in the US as well as promoting the Netherlands locally.

As the CEO and Chairman of the KeyXperience Group, he is very actively involved, as an angel-investor and consultant, in the Aerospace/Defense Industry and the Clean Energy Business.

From 2007-2022 Frank was the CEO of dpiX semiconductors. He moved the dpiX HQ from Silicon Valley (Palo Alto) to Colorado Springs in 2011 and established a new dpiX semiconductor foundry (150,000 sft) here in the great City of Colorado Springs. The company is the largest A-Si Semiconductor (glass) Fab in the western world, serving major Healthcare, Industrial and Aerospace & Defense customers.

Frank graduated from Leiden University (Netherlands) with an ML in Business Law & Intellectual Property and has an MBA from the Simon School, Rochester, New York and the Erasmus University of Rotterdam.

In 1993 he made to move to the US and since has worked in Colorado Springs (2x), Los Angeles, New York, Boston, Silicon Valley (2x) and Dallas.

He is actively involved in Colorado community work as the Vice-Chairman of University Colorado Health – MHS (hospital of the US Olympic Training Center), past Board Member of the Colorado Chamber of Commerce (CACI), past Chairman of the Colorado Advanced Manufacturing Association (CAMA), and past board member of the Colorado Springs Chamber of Commerce.

Please always feel free to reach out in preparation of, during and after your visit.

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Organizing parties

Accompanying organisations

NETHERLANDS INNOVATION NETWORK

Kingdom of the Netherlands

"Building bridges between the US and the Netherlands in the fields of innovation, technology and science."

About us

The **Netherlands Innovation Network** in the USA stimulates international cooperation between companies, research institutes and public authorities in the fields of innovation, technology and science. We address national and global challenges, aiming to further develop key enabling technologies through cooperation with partners in the USA.

The Dutch foster a forward-thinking culture that is open to experimentation and cross-disciplinary ideas. This open-minded attitude helps Dutch innovators break the mold time and again. And make it a great partner for international collaboration.
Our goal as a network is to create successful linkages between the US and the Netherlands through strategic partnerships, collaboration projects and programs and matchmaking on government, industry, institution and university level.

We look forward to the opportunity to help you become involved in sustainable innovation partnerships, so we can advance our common innovation, technology and science ambitions together.

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SPACENED

"SpaceNed is the industry organization of the Dutch Space Sector."

About us

SpaceNed is the industry organization of the Dutch Space Sector; representing almost 60 affiliated organizations; ranging from companies, knowledge institutes & universities.

SpaceNed supports and facilitates the Dutch Space Sector by creating, facilitating and supporting a long term and durable vision on how all members of this industry can work together to advance both their common and individual interests.

SpaceNed understands the interests and concerns of its members as well as other stakeholders in the sector. From this position SpaceNed is uniquely equipped to build a bridge of common interests to find synergy on many topics that will help the Dutch Space Sector to develop a stronger presence in the global landscape.

Our activities

- **Export markets:** SpaceNed supports the entry and development of export markets and informs its members about international opportunities.
- **Innovation:** SpaceNed organizes innovation-oriented events and activities and ensures sufficient financial resources to promote innovation within the space sector.
- **Knowledge sharing:** SpaceNed provides a platform to meet and share information on topics such as aerospace business, quality assurance, legal and contractual regulations and more.
- **Lobbying:** SpaceNed connects the major players in the Dutch space sector allowing them to have a stronger voice towards governments and international institutions and companies.

Board

SpaceNed is represented by a board of dedicated experts from organizations from their member base, who understands both the evolution of the space industry and its key players, as well as the needs, challenges and opportunities felt by its members.

Company facts

The Dutch space sector (upstream and downstream) is estimated to account for

- approximately 10,500 FTE.
- € 1.9 billion production value.
- € 1 billion added value.

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AAC HYPERION

"Centre of Excellence for Advanced ADCS Components, Propulsion and Laser Communications."

About us

AAC Hyperion specialise in high performance nanosatellite components and are renowned for their reliable attitude and orbit control technologies and their innovative laser communications. Their commercially focused solutions have demonstrated impressive capabilities in space stretching across a wide range of customer applications. AAC Hyperion has a strong track record in the market, with government, commercial, and educational organisations around the world, their small satellite subsystem range offers excellent functionality with unparalleled support for seamless integration, bringing clients back for multiple projects.

The US Market

AAC Hyperion's high-performance satellite subsystems have been gaining momentum in the small satellite market for a decade. Their comprehensive ever evolving product portfolio is available off-the-shelf and at high volume. A portfolio which includes cutting-edge New Space technology for optical satellite communications, a key technology for future satellites, to one of the world's smallest star trackers, many of which were developed in collaboration with Dutch research institutes.

Their integrated product offering, extensive production capability for high volume orders alongside their established and cultivated business relations with existing US customers is testimony to why they keep bringing clients back for multiple projects.

Solutions

AAC Hyperion offers a full range of high-performance sensors for attitude determination, advanced attitude control solutions, integrated ADCS, navigation components, payload processing units to chemical propulsion and laser communications solutions for nanosatellites.

Company facts

- Founded in 2013, joined AAC Clyde Space in 2020.
- 180+ employees across 5 countries.
- 3 business lines: Space Products & Components, Space Missions, & Space Data as a Service.
- Best-in-class manufacturing techniques enable us to fulfil high volume requirements at speed.
- Extensive flight heritage and proven quality.

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AIRBUS NETHERLANDS

"We pioneer sustainable aerospace for a safe and united world."

About us

At **Airbus Netherlands** our purpose is to improve life on Earth and beyond through cutting-edge space technologies. For many years, the Dutch space company has been contributing to the success of international missions. Today, its innovative technology is supporting the integration and sustainment of advanced space systems, bringing a strong expertise in areas like Earth observation, telecommunications and science. By supplying reliable products and services ranging from solar arrays to launcher structures, Earth observation instruments and optical ground stations for laser communications, Airbus NL provides solutions for customers and their programs around the globe.

The US Market

Airbus Netherlands is active on the US market for several decades. This is mainly in the field of solar arrays and EO instruments; the company developed and builds the solar arrays for the Artemis Missions, as well as the solar arrays for NASA's Europa Clipper mission. Airbus NL jointly developed the SPEXone instrument for the recently launched PACE mission of NASA. A main area of growth for Airbus NL is the new low-cost Sparkwing solar array product for the smallsat and constellation market, which is serving several US and other international customers.

Solutions

- **ARAmk4 Solar Arrays**: high-tech solar arrays for every mission type.
- **Sparkwing Solar Arrays**: plug-and-play solar array to power individual smallsats and complete constellations.
- **Launcher Structures**: highly-loaded structures for Ariane 6 & Vega-C.
- **Laser Satcom**: Optical Ground Stations (LEO, GEO, QKD) & Airborne and Mobile (maritime) terminals.
- **Noctua EO Instruments**: emission monitoring spectrometers.
- **HiPeR Flexlinks**: light-weight, flexible point-2-point thermal straps.
- **EGSE**: modular platform and payload EGSE for satellite testing.

Company facts

- Airbus Netherlands is the largest space company in the Netherlands.
- Over 50 years of heritage in developing space technology.
- Operating a cleanroom facility & a 5,000 sqm smart factory.
- Yearly turnover ±60-70M and an order backlog of 85M (2022).
- The team of 250+ professionals consists a strong mix of seasoned specialists and young talents.

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Connect

COSINE

"Advanced optical and in-situ measurement systems to retrieve the information you need from space."

About us

cosine is a leading worldwide company in the development of space instrumentation, such as Silicon Pore Optics for astronomy and remote sensing solutions with onboard analytics. We have been developing and delivering innovative measurement systems for space and industrial applications since 1998. Our company operates 1,000 m2 of cleanrooms and high-tech assembly facilities to build and test the systems we produce for customers at our headquarters in Sassenheim, The Netherlands.

The US Market

With its advanced remote sensing technologies, cosine can provide precise data in a short amount of time for crop monitoring, early detection of natural disasters, infrastructure assessment, and various other applications related to climate change, defense and security. These capabilities can enhance efficiency, reduce costs, and improve decision-making across various sectors, boosting competitiveness and resilience in the US market the US market.

Solutions

- Our HyperScout product line consists of various models of enhanced hyperspectral imagers for space with high-level onboard processing capabilities and AI, to enable your operational and science missions from small platforms.
- Our Silicon Pore Optics (SPO), lightweight, high-resolution X-ray optics offer significant advantages for a variety of applications such as silicon wafer bonding, optics for very hard X-rays and gamma rays, etc.

Company facts

- Founded in 1998 by Prof Dr. Marco Beijerbergen.
- 1000m2 of cleanrooms and high-tech facilities at our headquarters in Sassenheim, The Netherlands.
- We develop out-of-the-box solutions for our customers and offer a series of HyperScout instruments and High Energy Energy Optics.
- 50+ highly-qualified international staff working in close collaboration with universities, institutes and various international space companies and agencies.
- In 2024, cosine's HyperScout M will fly onboard Australia's Kanyini satellite mission, and HyperScout H will fly onboard ESA's Hera mission.

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DAWN AEROSPACE

"High performance, green propulsion."

About us

Dawn Aerospace delivers best in class chemical propulsion systems. Our CubeDrive and SatDrive technologies offer high thrust and high performance at a fraction of the cost and lead time of conventional systems. Using Dawn's space-proven building blocks and common architecture, we can deliver complete turn-key propulsion systems, customized to your mission.

The US Market

For US satellite builders who are driven by affordability, responsiveness, and work on resilient LEO systems, our SatDrive technology offers high thrust, low cost of ownership and low lead time. Additionally, propellants are domestically available with virtually no lead time, simplifying logistics for US customers.

We deliver customized turn-key propulsion systems using Dawn's TRL9 components, including thrusters, tanks, valves, instruments, and electronics. We will work with you to design, build and qualify a system specific to your mission.

Dawn takes a broad partnership role in supporting all your spacecraft mobility needs. This includes early design and mission planning, full hardware support, onsite training, delivery, and export logistics, launch site integration and propellant loading, and on-orbit commissioning. We are a full-service partner, helping you with everything needed to deliver, position, and return your satellite.

Solutions

Unmatched combination of performance, price and lead time.

Company facts

- Founded: 2017.
- Team: 100+ FTE.
- Thrusters in orbit: 76+.
- Production backlog: 100+ thrusters and systems.

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FSO INSTRUMENTS

"Laser Satellite Communications, Ready for Prime Time"

About us

FSO Instruments, together with its ecosystem partners, develops and supplies optical communication optical heads, components, sub-systems, and terminals. FSO Instruments combines the strengths of Demcon and VDL ETG, and builds on TNO technologies allowing laser satellite communication to take the next steps towards industrialization. Working closely with our customers we can quickly realize reliable solutions that are fit for purpose.

The US Market

FSO's Space Flight Proven laser technology combined with VDL ETG's high tech contract manufacturing allow for rapid and reliable large- scale adoption of optical communication in space. Our effective and efficient approach to design and manufacturing allow simultaneous improvements in quality and reliability while reducing time and costs for manufacturing, testing and qualification.

FSO Instruments works with partners on both sides of the Atlantic to serve commercial and government opportunities in North America as well as in Europe.

Solutions

FSO builds and improves on CubeCAT, TNO's compact laser satcom terminal for Direct to Earth Applications. CubeCAT is being brought to market by AAC Clyde Space.

- FSO is realizing optical heads for other applications of satellite laser communication.
- FSO offers the space proven FSM – fast steering mirror – as a subsystem for use in laser communication applications.

Company facts

- Founded in Delft in 2023.
- FSO is a joint Venture between Demcon and VDL ETG Groep, combining a wealth of engineering capability with Europe's best high tech contract manufacturing.
- A core part of the FSO team played a key role in developing TNO's laser satellite communication technology.

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ISISPACE GROUP

"Disruptive Space Solutions for a better tomorrow."

About us

ISISPACE Group is a world-leading vertically integrated small satellite company focused on supporting customers worldwide in accomplishing their space missions and applications. With a team of more than 120 dedicated experts, we can offer:

- **Small Satellite Elements:** cost-effective, modular satellite equipment with a range of solutions from 1U-16U.
- **Tailormade and Turn-Key satellite solutions** ready for launch in 6-15 months.
- **Small-satellite services:** access to space-based data on a subscription basis.

The US Market

With over a decade of experience in delivering responsive nanosatellite missions – we offer a comprehensive space infrastructure service for US entities. ISISPACE Group's well-practiced lab to flight pipeline allows us to quickly bring innovative technologies into space at low cost and with low risk. We seek to expand US collaborations in:

- Earth Observation (Multi/Hyperspectral)
- RF and Optical communications (Civil and Military)
- Distributed Sensing (Spectrometry, SAR etc.)
- Cislunar/Exploration (Deployers, Optical Terminals)

In the US, ISISPACE is seeking growth opportunities ranging from R&D grant work (SBIR) to Defense procurement (USSF), satellites for commercial constellations or NASA programs.

Solutions

ISISPACE Group CubeSats can support complex mission applications such as AIS, ADS-B, SIGINT, GEOINT, IoT, EO, Ship Tracking, and Science Experiments. We offer reliable power systems, solar panels, and battery packs. Our launch equipment enables CubeSats and Microsats to be safely launched on board Falcon-9, LauncherOne, Vega, various OTVs, and other launch vehicles.

Company facts

- 618+ satellites successfully launched into LEO.
- Built and launched 12 6U's for Kleos to improve maritime domain awareness.
- Long-standing history of providing small satellites for government agencies, militaries, research institutes, universities, and commercial companies.
- Prime contractor for the Dutch Defence's first satellite, BRIK-II.

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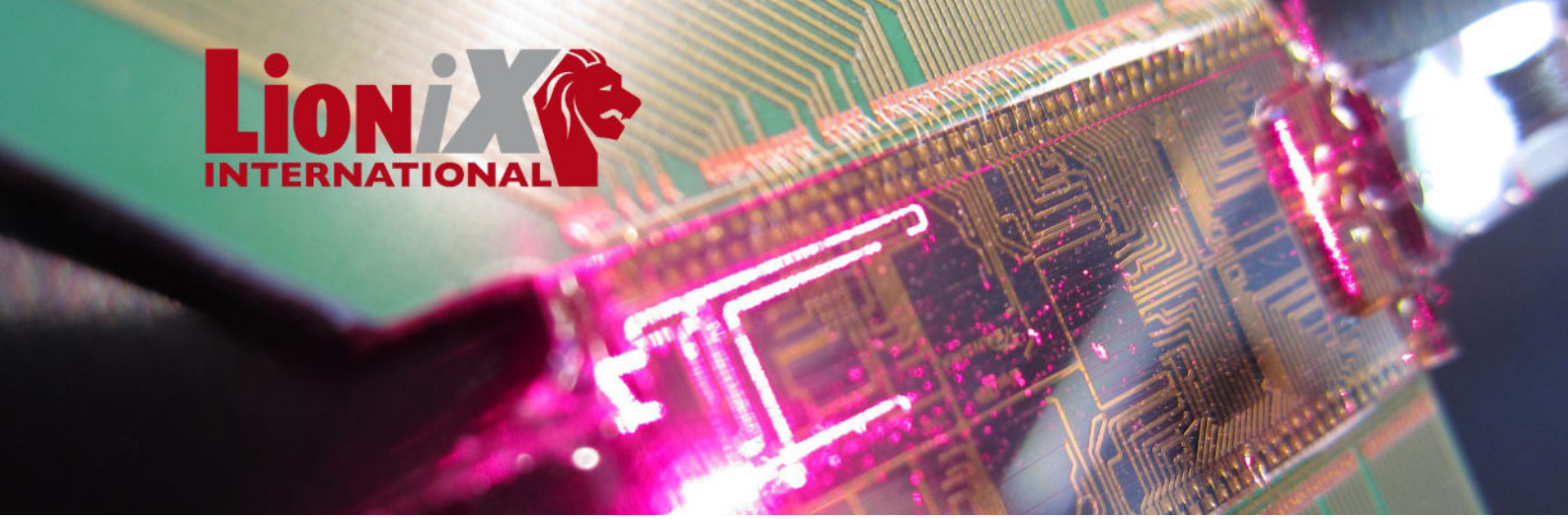

LIONIX INTERNATIONAL

"Our Chips Drive your Business."

About us

LioniX International is a leading global provider of customized microsystem solutions, in particular integrated photonics-based, in scalable production volumes. LioniX provides customized solutions for various markets, from design to device, by vertical integration in scalable production volumes and maintaining technology leadership secured by strong IP position. We focus on Photonic Integrated Circuit (PIC) modules based on our proprietary waveguide technology (TriPleX®), in addition to our other core competences micro-fluidics, opto-fluidics and MEMS.

The US Market

LioniX International has over 20 years of microsystem solutions design and fabrication experience. We are recognized as visionary leaders in passive silicon nitride photonics and low-loss integration of active photonic components. We leverage our fully European supply chain to provide custom integrated photonics and MEMS to clients and partners all over the globe. Our manufacturing, assembly, and testing laboratories are all based in Enschede, ensuring efficient and secure production stage transitions and knowledge transfer. Our work in photonics is vertically integrated, with in-house expertise in design, fabrication, assembly, packaging, and software development. We have a strong IP position in the USA and globally, with a local patent agent and representative.

Solutions

• For Horizon Europe's project SPACEBEAM, a novel optical beamformer for a satellite receiver with an X-band synthetic aperture radar.
• For the European Space Agency (ESA), an optofluidic immunoassay chip with a rotary valve for sample selection and an evanescent field biomarker sensor.
• For an ESA & Viasat public-private partnership, a time-delay photonic switch for a phased-array antenna in terabit-capacity satellite broadband networks on aircrafts.

Company facts

- Founded in 2001.
- More than 60 employees.
- High level of scientists and engineers (>50% PhDs).
- Teams in microwave photonics, circuit design, PCB design, chip fabrication, module assembly, and system characterization.
- Participated in over 40 EU-funded R&D projects and several national projects.
- Over 40 patents in the US and elsewhere.

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NIVD - THE NETHERLANDS INDUSTRIES FOR DEFENCE & SECURITY

"The NIDV links companies, knowledge institutions and the government in The Netherlands."

About us

Since being founded in 1984 by the ministries of Economic Affairs and Climate, Foreign Affairs, Defence, and industry partners, the **NIDV** ensures the sustainable positioning of the Dutch defence and security sector both at home and abroad. The NIDV acts as information provider, advocate and service provider for the Dutch Defence and security sector.

The US Market

• **Gateway to Europe** - Being an outward-looking country with a strong international and European foothold, many international companies choose the Netherlands as their seat in Europe. The Netherlands industry plays an important role in de sustainment of the F-35 The government offers an attractive fiscal climate. The country has modern legislation and a stable business climate.
• **Creative & Innovative** - Creativity and innovation are in our blood. With world-class universities and knowledge institutions the Netherlands ranks amongst the most innovative countries in the world. With institutions like ESA and ESTEC within its borders, particularly for the Space-sector.
• **Industrial participation (IP)** - The NIDV is matchmaker between US-companies with IP-obligations and the Netherlands Defence and Security sector.

Solutions

• **Networking** - The NIDV has an extensive network both domestically and internationally. We excel at connecting companies with market leaders and decision makers.
• **Exhibitions** - We organise our own annual Defence & Security exhibition, the NEDS, and form delegations with our members to visit exhibitions all over the world (www.nidvexhibition.eu/en).

Company facts

- **Co-founded by the government** the NIDV is a unique branch organisation with 199 member companies and organisations.
- **Partners for Internation Business:** The NIDV supports a PIB with the United States concerning Space technology. This PIB is managed by SpaceNed, the organisation of space- companies in The Netherlands.

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THE ROYAL NETHERLANDS AEROSPACE CENTRE – ROYAL NLR

"NLR is a leading international research centre for aerospace."

About us

Royal NLR has over 100 years of experience in aerospace, and works to achieve sustainable, safe, efficient and effective aerospace. In the field of space, NLR works with industry and government on developing satellites, payload and launcher systems and subsystems, like thermal control systems, electronics or antennas. Plus, unique capabilities in the area of aerospace qualified light-weight composite structures and multi-metal additive manufacturing, and the effective use of earth observation and satellite navigation data for civil and military uses.

The US Market

As an independent R&D centre for aerospace, we are known for our practical approach and innovative solutions. Due to our expertise, combined with our in-house facilities, we can support US companies and government in the whole development chain from concept development to prototype and even small series production. We develop hardware from sensors launcher components, up to software and information products derived from multiple source data fusion.

Solutions

Royal NLR supports the MoD by enabling them a unique smart specifier, developer, buyer and integrator position within the full spectrum of the Technology Readiness Levels (TRL's) for Space Power capabilities:

- Space-based Intelligence Surveillance and Reconnaissance (ISR).
- Space Situational Awareness (SSA) and Understanding.
- Robust Positioning Navigation and Timing (PNT).
- Effective use of satellite communications (SatCOM).
- Space-based early warning.
- Protection of space-based assets.

Company facts

- One-stop-shop for Defence. Innovative, engaged and practical for government and industry.
- € 92M turnover, ~800 employees, 100+ years of heritage.
- Space Power capability research, development, test and experimentation (RDT&E).
- In-orbit mission demonstrators using small satellite systems.
- International collaboration in Military Use of Space.

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Connect

NSO - NETHERLANDS SPACE OFFICE

"Netherlands Space Office is the space agency of the government of the Netherlands."

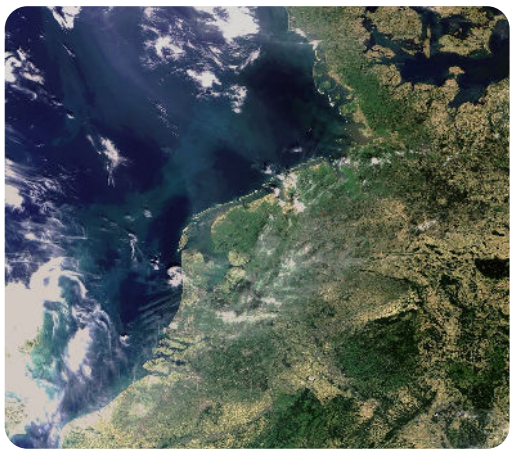
About us

The Netherlands Space Office (NSO) is the governmental Space Agency of the Netherlands. NSO's task is to advise upon and realize the national space policy. The space policy of the Netherlands focuses on the added value of space on science, economy and society, and in particular the development of ground- breaking space technologies, and services based on satellite data.

NSO supports and stimulates space companies and institutions in the Netherlands to start new collaborations with international partners. The agency is the main point of contact for national and international space affairs and reports directly to the Ministry of Economic Affairs, the Ministry of Education, Culture and Science, the Ministry of Infrastructure and Water Management, the Ministry of Foreign Affairs and the Netherlands Organization for Scientific Research (NWO).

Space in the Netherlands

The Netherlands is a high-tech country. It is also a melting pot of European space technology, thanks to the establishment of ESTEC, the technical heart of the European Space Agency. Many European space missions would not exist without Dutch launcher technology, they are also powered by Dutch solar panels. Sensors and optical systems from the Netherlands are world renowned. Meanwhile, Dutch engineers are working on a new generation of small cooperative smart satellites. With their sound business acumen and the need to always push the boundaries of science and technology, space companies and institutes from the Netherlands offer solutions wherever they are needed in the world. As the governmental space agency NSO is there to support them in their establishment of international partnerships.



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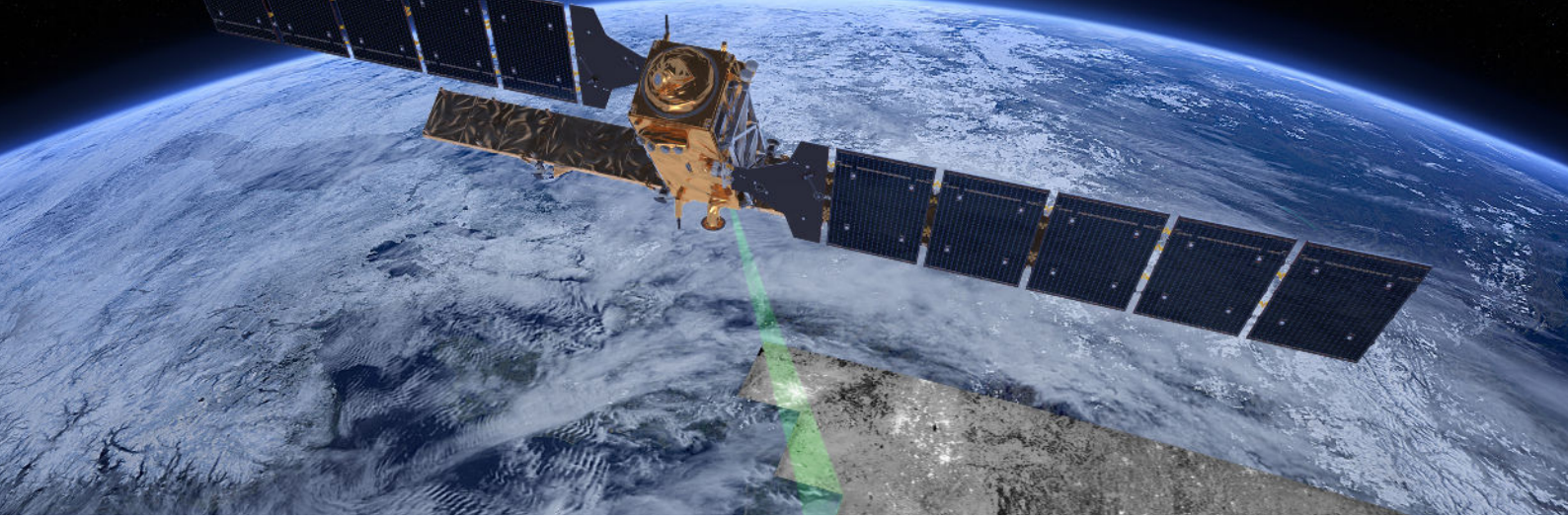

S[&]T

"Space for a safer life."

About us

We are specialized in information systems based on space technology that support complex decision-making or (semi-) autonomous systems.

We specialize in:
• Scientific (on-board) data processing for satellite-based earth observation.
• Decision support systems leveraging space data.
• Advanced data analytics (machine learning, anomaly detection, semantic processing etc).
• Resilient Positioning, Navigation and Timing systems based on advanced antenna technology and interference detection.
• Space Situational Awareness using radio astronomy techniques.

The US Market

We are looking for customers for our space technology applications and cooperation in major development projects.

Solutions

Data is powerful when transformed into actionable insights. Our solutions support our clients in their journey towards a more information-driven approach. A few examples of our solutions are:
• High-performance data platform for earth observation data processing, capable of handling huge, distributed and diverse data sets.
• Monitoring networks for GNSS jamming and spoofing detection.
• Remote monitoring using earth observation data (e.g. change detection to monitor critical infrastructure like oil and gas pipelines).
• A warning system for disturbances caused by solar radio bursts (space weather monitoring).

Company facts

- Since its founding in 2000, S[&]T has grown to a diverse group of about 150 professionals, where 90% of them hold a B.Sc, M.Sc and/or PhD degree in Computer Science, Applied Physics, Aerospace Engineering, Electrical Engineering, Mathematics or Astronomy.
- The S[&]T headquarter is in Delft, The Netherlands, with local offices in Oslo and Rome. The total yearly turn-over is 10 M EURO. S[&]T is both a trusted subcontractor and a project prime. As prime S[&]T is used to execute projects in the range from 50 K EURO to 5 M EURO.

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SEKO GOVERNMENT SERVICES & DEFENCE

"Your special forces in Defence supply-chain solutions."

About us

SEKO GSD global organization supports the execution of transport, logistic and warehousing with full regards of export compliance, on behalf of NATO countries, defense contractors and SME's across the globe. SEKO GSD's fast decision-making process provides innovative solutions that continue to redefine defense logistics. Through the entire supply chain, we utilize approved Ocean, Air and Land carriers, subcontractors and secured warehouses all checked and vetted by our export compliance team of experts.

The US Market

SEKO Logistics specializes in providing complete supply chain solutions that can help companies streamline their process while controlling costs and improving efficiency. With our dedicated and personalized services, SEKO is able to improve efficiency, accuracy, and safety in the US Space Market. SEKO Logistics is also a leader in utilizing tracking, making it easier for companies to monitor shipments progress and improve the security. Additionally, SEKO Logistics leverages technology that allows for real time reporting and analytics that enable companies to better identify bottlenecks and areas of improvement in shipping processes. With 54 offices in the US, SEKO offers complete supply chain coverage.

Solutions

- Export Compliance desk assistance.
- Dangerous goods experts.
- Multimodel Transport by Air, Ocean, Road.
- Aircraft and Ocean vessel charters.
- Transport of out of gauge, sensitive, or classified cargo.
- Customs brokerage.
- Warehousing & Distribution.

Company facts

- Founded: 1976.
- Headquartered in Itasca, Ilinois.
- 140 offices in over 40 countries.
- Over 5.000 Employees.
- Multimodel Transport Air, Ocean, Road, Rail.
- Export compliance desk.
- Transport of all classes of dangerous goods.

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We Build The World's Best Satellite Power Systems With Vertically Integrated Semiconductor Design.

Applying Apple's Design Approach to Space:
Full-Stack Control: Silicon to Software

SPHERICAL SYSTEMS

"Accelerating Space Technology Through Agile Semiconductor Design."

About us

SPHERICAL enables customers to move faster in their satellite design and assembly while removing project risk. We build satellite subsystems that are both software-configurable and highly reliable. This means that we can deliver standard products that avoid custom engineering, long lead times and delays. The company was founded in 2022 by two Aerospace Engineers and has received $1.3M in funding towards the development of its first power subsystem.

The US Market

We are building spacecraft electronics and vertically integrating the semiconductor design, a new approach that results in a better system than anything currently available in the US supply chain, and eliminates non-recurring engineering costs through software-configurability.

SPHERICAL's engineers have experience in the design, qualification, assembly and test of some of the most popular satellite power systems. SPHERICAL has deep experience in the design of satellite power systems both with COTS components and the design of application specific semiconductors. This provides a thorough understanding of the radiation effects in electronics and the appropriate mitigation of failure propagation in satellite electronics.

Solutions

Our Power Conditioning and Distribution Unit is available in three power classes, ranging from 300W to 15kW.

With our approach, we can affordably offer:

1. **LEO/MEO/GEO capable systems:** 100 krad TID, 65 MeV·cm^{2}mg SEE
2. **High Performance:** >5x higher Power Density
3. **High reliability:** >10 years Lifetime
4. **Software Configurability:** TMTC, inputs/outputs

Company facts

- Founded: 2022.
- Customer projects: 2.
- Team: 10+.
- First product chip tape-out completed in November 2023.
- Funded in-orbit demonstration on SpaceX Transporter-14.

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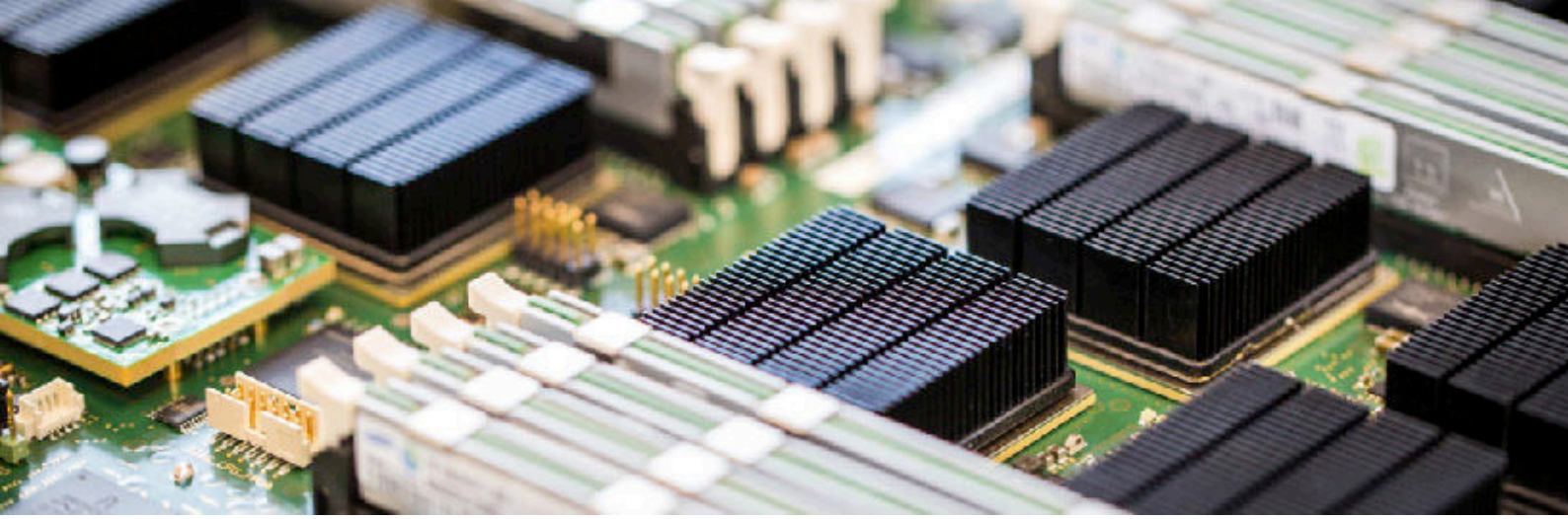

TNL

"Advanced electronics and embedded systems in complex devices."

About us

With a proud track record of more than 30 years, **TNL** is a market leader in Europe. Our products and solutions are used in critical defense and security applications, mobility and traffic flow management, road and tunnel infrastructure, and regional and national power grids. TNL carries out highly sophisticated research and development projects, providing systems engineering, programmable logic, application development, electronics and embedded electronics design and development services.

The US Market

Improving the world through technology, that has been our great passion since 1987. We serve the industries mobility, energy, manufacturing, high tech, big science and high assurance. Software, electronics and programmable logic are our instruments, but it is the huge creativity, the enthusiasm and the commitment of our people that makes us truly unique.

With an outside-the-box approach we create the best working solution for every challenge. We like to do this together with clients, partners and knowledge institutions. After all, the greatest ideas arise when we inspire each other.

Solutions

TNL develops advanced embedded electronics solutions for high-tech industrial and scientific applications. Our engineers are specialized in embedded electronics for optics, imaging and high-speed data processing. In addition, we develop effective solutions for electronics in special circumstances, such as high levels of electromagnetic radiation and difficult atmospheric conditions. Our electronics designs are produced at high quality by trusted production companies with whom we have built a strong relationship.

Company facts

- Innovative technology since 1987.
- 250 enthusiastic, highly educated colleagues.
- Multidisciplinary expertise software, programmable logic and electronics.
- Technology for high-tech, big science and high-assurance solutions.
- Operating worldwide (The Netherlands, Sweden, USA).
- 50M USD turnover.
- CDPU - Control & Data Processing Unit, a modular and flexible Instrument Control Unit (ICU) with data processing for SmallSat instruments.

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THALES

"Building A Future We Can All Trust."

About us

Thales Cryogenics provides highly reliable cryogenic solutions for both the institutional and new space market.
Thales Cryogenics is a leading manufacturer of highly reliable cryogenic coolers. And is one of the few companies in the world that not only is able to mass produce high reliable Stirling and pulse-tube coolers for terrestrial use but also has the longest track record in producing such types of coolers for space applications, both institutional and new space.

The US Market

For space system integrators who have a need to cool their detectors to temperatures between 50 and 200K Thales is offering a full suite of space solutions ranging from cryocoolers designed for space to our commercial cryocoolers designs which are specially built and tested for space. Thales is the only company mass producing pulse tube cryocoolers commercially, which have been field-tested in harsh conditions with a mathematical MTTF from one of our customers of over 4 million hours from their installed base fielded data. Our cryocoolers are dual opposed pistons that can be actively cancelled, with both Stirling and pulse tube cold head solutions for very low exported vibration.

Thales is actively looking for partners who need long life, high performance cryocoolers with very low exported vibration. To date, we have provided over 80 cryocoolers which are destined for space launch. Please contact us to learn more about our space cryocoolers.

Solutions

Thales is offering cryogenic cooling solutions for new and full space applications where high reliability and costs are key.

Company facts

- Thales Cryogenics has supplied over 80 cryocoolers destined for space launch, ranging from high strategic value to lower cost CubeSat missions.
- We have received two NASA achievement awards for our contribution to the JPL NASA ECOSTRESS program.

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TNO

"In close cooperation with industry, TNO delivers breakthrough technology for space and science."

About us

TNO is a not-for-profit independent Dutch research organisation with more than 50 years of space heritage. We develop instruments, sensor technology and payloads for Earth Observation, ISR, Space- and Ground-based Astronomy, Satellite Communications and Space Situational Awareness. Our name is connected to payloads such as OMI flying on NASA Aura, TROPOMI on Copernicus, Sentinel 5 on Copernicus, Sciamachy on Envisat, Milspace2 satellites.

The US Market

TNO can offer services related to the development of payloads – from requirements to design, integration, testing and calibration. We also offer technologies such as:

- free-form optics, with state-of-the-art quality and space flight heritage.
- optical products for Optical Communications, incl. ground segment, Inter-Satellite Links, optical relaying & offloading, air to satellite connectivity.
- satellite identification tag and lidar technology for space assets and debris tracking.
- high precision mechanisms with piston error below 1pm/sqrt (Hz) and extreme thermal dimensional stability.
- RF and radar-based technologies and processing capabilities.
- mission concept development.

TNO is interested in collaborating with US partners in the development of future payloads for Earth Observation & ISR, Space-based and Ground-based Astronomy, Satellite Communication and Space Situational Awareness. While we can offer expertise on the payload and processing technologies, we rely on our partners for satellite integration and developing and implementing services, etc.

Solutions

We always deliver! This, combined with our knowledge and heritage is why we are the right partner.

TNO innovation for life

Company facts

- Founded: 1932.
- Team: ~4000 FTEs.
- Space Team: 350+ FTEs.
- TNO: one of the largest RTOs in Europe.

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WEST END TECHNOLOGIES

"Mechanical Ground Support Equipment (MGSE)."

About us

West End is family owned and run since 1947. Our products for Space and Astronomy are Mechanical Ground Support Equipment, transport containers (incl. vacuum or pressure housings) and (flight hardware) parts. Well-known projects regarding containers and MGSE are Tropomi, Galileo, Bepicolombo and Sentinel 5.
Examples of Mechanical Ground Support Equipment (MGSE) are lifting equipment, flight hardware interface adaptors, tip and tilt trolleys, special test adaptors and (internal) transport equipment. West End builds specialised transport containers for space flight hardware or astronomy optical hardware. Next to MGSE and Containers, West End is involved in Ground Based Astronomy with a long history in tooling, housings and fine-mechanical calibration equipment. Last but not least, West End also manufactures flight hardware for the VEGA rockets.

The US Market

West End is interested in collaboration with US partners in the development of Tooling and Ground Support Sytems for Space or Defense applications. As an example: West End manufactured almost all MGSE for the Solar Array of the Artemis mission to the Moon.

Solutions

- Rotation fixture.
- Cantilevered rotation fixture - a cost-effective solution to allow ergonomic full access to cantilevered payloads.
- Mobile platforms - to move space equipment in internal horizontal transport.
- Lifting equipment - to move space equipment in internal vertical transport.
- Transport containers – for space flight hardware or astronomy optical hardware.

Company facts

- Family company since 1947.
- Team: 50 FTE.
- Space MGSE: since 1970.
- US Military training hardware: since 2004.
- Flight hardware: Ariane.

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NL SPACE ACTIVITIES 2024

Activity	Date	Location
Small Satellite Conference We will be present with a delegation of the Dutch space sector, the Netherlands Space Office (the governmental Space Agency of the Netherlands), and the Netherlands Innovation Network.	3-8 Aug 2024	Utah, USA
IAC 2024 NL Space will have a 120 m2 pavilion, with representatives from the Dutch Space sector, the Netherlands Space Office (the governmental Space Agency of the Netherlands) and many more stakeholders!	14-18 Oct 2024	Milan, Italy
Defense Industry Days Defense and industrial base cooperation among allies and partners is now more important than ever. We need strong relationships between our governments and robust partnerships between our defense and space industries. With guidance by leading professionals and senior representatives from government, industry and academia, we will organize a 2-day program to discuss the issues of today in order to overcome the challenges of tomorrow.	17-18 Oct 2024	Washington DC, USA
NEDS 2024 The NIDV Exhibition Defence and Security (NEDS) is the annual event for the Defence and Security industry and governments in the Netherlands and is organized by the Netherlands Defence and Security Industry Foundation – NIDV. NL Space will be present with a NL Space pavilion and a cluster of Dutch Space organizations.	20-21 Nov 2024	Rotterdam, The Netherlands

If you are looking for more information on the NL Space activities, looking for cooperation or any other questions, please contact hessel.kokke@spacened.nl