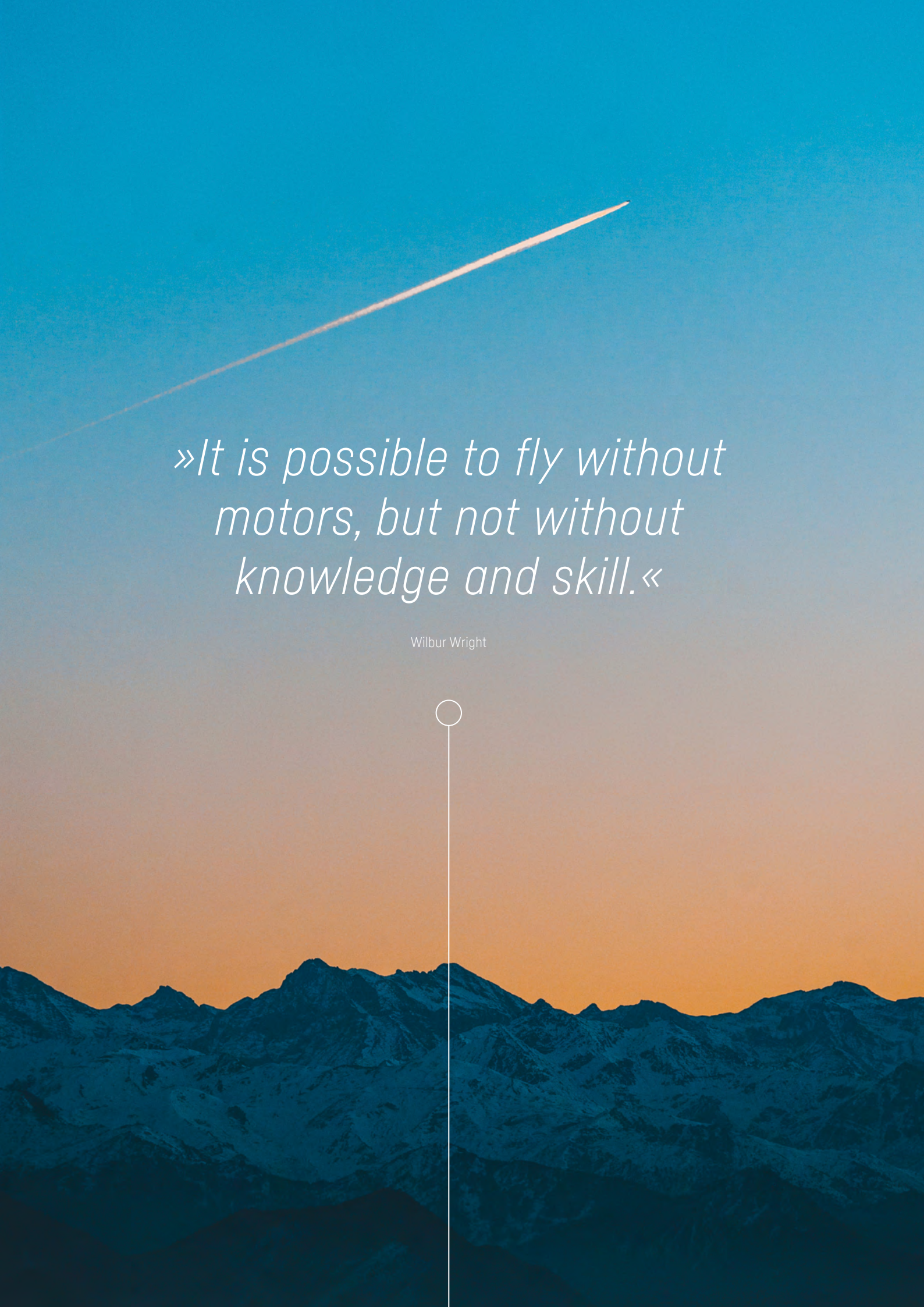
Welcome at AES

We create solutions.


»It is possible to fly without motors, but not without knowledge and skill.«
Wilbur Wright

At home in Northern Germany.

We are an international company comprised of over 150 highly skilled employees, serving our customers in the aviation, space, and maritime industries.

You find our headquarters in the technology park directly adjacent to the Bremen Airport. Our management board and main administrative management staff work at this location. The electrical engineering department, certification department, electronic development department and production for the OEM market are also located here. The company building, shaped like an aircraft wing, was built in 2005 and extended later on. In September 2013, AES unveiled a new headquarters building, doubling its space area.

In May 2010, AES opened up a branch in Hamburg that specialises in lighting, communication and control systems for business and VIP aircrafts. This division develops unique and customized solutions. It is located in a converted, newly renovated warehouse with original furnishings and large windows, providing a space ideal for inspiring and innovative ideas. Our Hamburg branch focuses on developing versatile, multifunctional electronics and custom solutions in addition to maintaining and updating our devices in service.

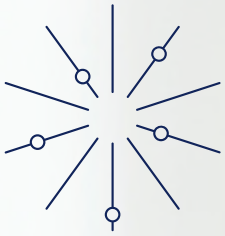
Creating solutions for challenging environments.

The tough requirements within the aviation industry continually push the limits of technical feasibility, creating major challenges. Our technical knowledge, high quality product standards and services, and an uncompromising focus on our customer requirements have made us a reputable international service and product provider for the aviation industry.

We are specialised in sophisticated development work to engineer complete electrical systems within an aircraft. Our services range from electrical design to the development and manufacturing of electrical and electronic products and systems.

These include: LED lighting, power management, controls, and telecommunications systems inside aircraft cabins and VIP planes. Our global customers include Airbus and Boeing, commercial airlines, cabin interior and galley manufacturers as well as completion centres.

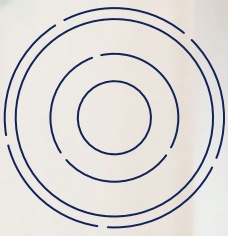
Our product portfolio for aircraft cabins includes but is not limited to: power supplies, LED lights for cabin crew service areas, light system controllers, and auxiliary devices for cabin management systems. Our products are compatible with almost all types of systems. We customise our products and develop interfaces which guarantee the overall functionality of your system. This ensures that our solutions meet the highest standards of your requirements. Our products and systems can be used throughout the whole aircraft cabin, from galleys to lavatories and seats. We support you to create the ideal system for you, or just help find that one special part to complete your existing system.



Control Systems

Light Systems

Power Systems



Communication Systems


Typen:
0: NC
1: X
2: UTIL
3: ACU
4: WACO
5: WL
255: UNDEF = Config Error
GAIN (No Unit)
UTIL
ACU
WACO
WL
Status Message ECB: (PDU)
↳ CECB : UTIL
↳ NEUER
↳ DTN
↳ Rating
↳ Status
↳ Word (Voltage Current
↳ 3P + OVT Flag
↳ Voltage Flag
Flag:
INPUT Cycle
RM
OUTPUT Cycle

Everything under control.

AES controls use microcontroller or programmable logic (e.g. FPGA).

The move to digitally controlled products started with the RGB spotlights for colour lighting applications. The spotlight features a 32-bit microcontroller, which controls and monitors the light output while software compensates for colour deviations caused by operating temperature and aging. AES developed and documented the embedded software in accordance with the RTCA DO-178B standard (Software Considerations in Airborne Systems and Equipment Certification).

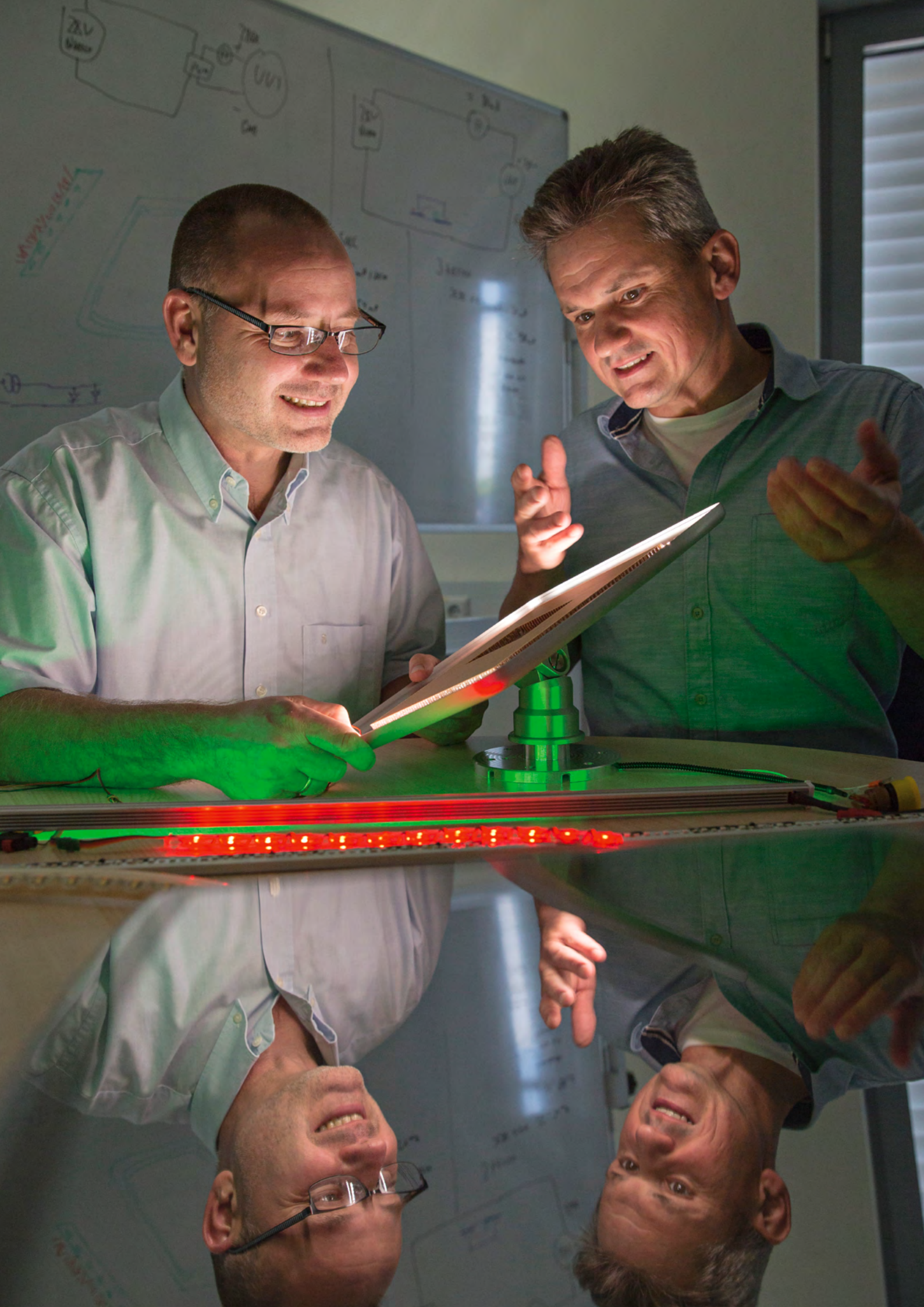
A major showpiece within the AES Light System is our configurable RGBW Light Controller, developed and approved for single-aisle, long-range and A380 aircrafts. We tailor the light controller functions to meet customer requirements, using application specific software and parameter configurations. This flexibility makes the light controller a versatile control device not only for AES LED lights.

AES has also designed and developed a water control system for VIP aircrafts. The system consists of a main controller unit and a touch screen computer serving as an interface to communicate over a serial data bus. Rather than software programmable logic drives the core functions of the main controller. This allows it to meet all the requirements, e.g. controlling many valves simultaneously.

Light up your cabin.

The Lights & Mechanics Competence Centre is responsible for light and circuit development, mechanical design, and prototype construction. The team members shadow products through every step of the life cycle: from creating specifications, developing solution concepts and making design drafts, to detailed construction work, series launches, and ongoing support. We design efficient control circuits in coordination with customer requests and specific aviation requirements, employing thermal analyses and strong heat management to guarantee a robust design. Optical calculations, with both general and advanced endurance tests, are verified in our light laboratory ensuring ideal results. Light measurement services and technical support are also available.

AES has a high focus on LED lighting, resulting in an extensive knowledge about how LEDs behave in diverse operating and environmental conditions. Today we can create durable lights with consistent light quality. We use sensor chips to compensate for colour drift caused by temperature or aging. This is especially important for cabin lighting, to ensure that passengers see homogeneous lighting throughout the cabin continuously. We can achieve colour homogeneity in less than 3 SDCM with high colour reproduction values. We have also developed lighting compatible with the night vision system (NVIS) according to MIL-STD- 3009 as well as state-of-the-art technologies like OLEDs (Organic Light Emitting Diode).



We have got the power.

Our first series of classic power supplies are transformer rectifiers. They are approved for the AIRBUS single-aisle (A318, A319, A320, A321) and long-range (A330, A340) aircrafts as well as for the Boeing B777.

The second generation are switch mode power supplies SMPS. They are approved for the AIRBUS A318, A319, A320, A321, A330, A340 and A380 aircrafts. They work with variable and constant frequencies. The SMPS' are far lighter and more efficient than the transformer rectifiers. Furthermore, they automatically shut down in the event of overheating and restart only after being reset.

The "Cool & Green Power" SMPS' are our third and latest generation of power supplies, using up-to-date resonance transformers. They are approved for AIRBUS A318, A319, A320, A321, A330, A340, A350 and A380 aircrafts. These highly efficient products ensure minor dissipation losses and keep the temperatures low. As a result, the "Cool & Green Power" sources do not require an internal fan.

The next generation of digitally controlled power supplies is already in development.

We are always in search of innovative features for future product generations.

AES Power Supplies - latest technologies to the advantage of our customers.


AES
Aircraft Elektro|Elektronik
System GmbH

Stay connected.

The AES communication system is a flexible “all in one” solution. This system consistently adapts to rapidly changing technological conditions, while meeting VIP, government, and corporation customers’ needs since the early 1990s. It is utilized in various aircraft models including the Airbus single-aisle A318 to A321 and long-range A330 to A340, as well as the Boeing 737 Business Jet (BBJ), 777 and 747 planes.

The main component of our communication system is the IP-Private Branch Exchange Server IPX. It allows for ISDN-quality phone calls (VoIP) in conjunction with Inmarsat (satellite operator) services, via Swift-64 or Swift Broadband SBB. The Swift Broadband service also provides internet connections to the ground via background or stream services. This allows passengers access to the internet, their e-mails, and video conferences.

The IPX is controlled and monitored by our Display Control Panel (DCP). Furthermore, several cord telephones (THA / THB) and cordless phones (CHA / CHB / CHC) can be connected. To use Android Smartphones, we have developed the “Connect” app.

Other devices important to point out are: the Ethernet Switching Unit ESU, telephone power supply TPS and individually designed maintenance panel and relay boxes.

Electrical Engineering.

Electrical engineering is one of the fundamental business areas at AES. We provide a wide range of related services in this field and have the expertise and size to design electrical systems for an entire aircraft. Our clients are aircraft manufacturers, monument manufacturers and completion centres as well as customers within the space and maritime industries.

Our general services include:

+ System analysis and definition
+ Configuration management
+ Engineering in 3D and 2D
+ Engineering support
+ Production support
+ On-site installation support
+ In-service support

Registered authorized employees have direct access to the AIRBUS system in our pool room, located at our Bremen Headquarters.

We specify electrical interface installations for aircraft galleys in the AIRBUS A330 and A340 aircrafts.

We offer electrical engineering for wire harnesses in the AIRBUS long-range (A330 & A340) and single aisle (A318 – A321) aircrafts.


AC Work Lig
28V DC AUX
GMDU 28V DC OUT
DC Work Lig
Phase
WARNING COMPARTMENT
System ON
FAN
LOAD
SER:004
Short Circuit Test
EUT-Input 3x115VAC 3x2.5A
ACU Signals
SER:001
EUT-Input 3x115VAC 3x7.5A
24V D

Additional services.

Our experienced electronic development employees have a wide variety of interdisciplinary skills and capabilities. These include: electronic, mechanical and optical design and developmental, electrical and electronic aircraft equipment. We also have our own software development department.

Our teams design customer driven solutions for components and complete systems, e.g. the lighting systems for the AIRBUS A380 lavatories. In addition, we aim to constantly cultivate our product range. For example, we use Synopsys SaberTM to simulate the electrical characteristics of systems and sub-systems.

We liaise with the University of Bremen on research and development work.

We offer a series of test services to ensure that our technical components always perform flawlessly, even in the toughest of conditions. In addition, our in-house teams evaluate how humidity, temperature, and electrical fluctuations impact equipment during air travel.

Certification services

AES is an EASA approved production (Part 21G) and maintenance (Part 145) organisation. Our quality management is EN 9100:2016 certified.

+ Products developed by AES
+ Products developed by customers
+ Entire or partial qualification processes
+ Household appliances customised for aircraft use (e.g. refrigerator, oven)

Documentation services

+ QTP (Qualification Test Procedure)
+ QTR (Qualification Test Report)
+ ATP (Acceptance Test Procedure)
+ ATR (Acceptance Test Report)
+ GRESS (General Requirements for Equipment and System Suppliers) and related documents
+ GREDS (General Requirements for Equipment and Design Suppliers) and related documents
+ All the required ABD documents

Our holistic approach.

We have been a proficient partner in a challenging industry since 1997. We have already started working on tomorrow's technology, because we keep our eyes forward. We combine creative ideas with skilled engineering, keeping abreast of today, but also pushing today's limitations into the technology realities of the future. Our focus is based on continual improvement, down to the smallest detail while meeting tough requirements.

We work in close cooperation with our customers, specifying a project's requirements together – a connection which makes us a more effective service provider. We listen closely, clarify your needs, think ahead for you systematically. From the initial idea to the development and production and after-sales support, our customers benefit from our expertise. We combine flexible, competent decision-making skills with decades of experience, wrapped in a professional style.

»All the calculations show it can‘t work. There‘s only one thing to do: make it work.«

Pierre Georges Latécoère

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