

**TSEP**

**SOLUTIONS**

**CUSTOMIZED**

**TEST & MEASUREMENT SYSTEMS**

**AND DEVELOPMENT SERVICES**

**FOR YOUR COMPANY**



A successful family business for almost 40 years (from left to right):  
David Courtney, Peter Plazotta, Marion Plazotta und Dr. Simon Plazotta

## T&M EXPERTISE MADE IN GERMANY

Bundled expertise for your test and measurement systems  
in demanding technology fields

### For almost 40 years,

we have been developing and implementing excellent customized test and measurement systems – from definition to concept, from planning to implementation, from commissioning to support. As a development service provider from Germany, we draw on our many years of experience and our in-depth technological expertise. Our developments and solutions are incorporated into the products of leading manufacturers.

### What makes us special?

We combine all areas of expertise under one roof. Our interdisciplinary teams develop solutions from a single source: from hardware design and embedded software development to image customization and drivers to modern backend and frontend applications. We consistently focus on quality “Made in Germany.”

We leverage this long-standing expertise specifically for use in various fields of technology, including the test and measurement industry, the electronics sector, and the automotive market. This makes us highly sought-after specialists.

As an active member of the international LXI Consortium, we also help shape globally recognized standards.

### Who is behind TSEP?

Concentrated engineering power and development expertise – the TSEP team consists of long-standing project professionals and innovative test engineers. Our agile working methods enable you and us to reliably and safely achieve the milestones we have set.

Our highly dedicated team is represented by the management team of Peter Plazotta (founder and CEO), David Courtney (CTO), and Dr. Simon Plazotta (COO), who will be at your side as technical development partners.

# THE TSEP SUCCESS STORY – MILESTONES IN OUR DEVELOPMENT

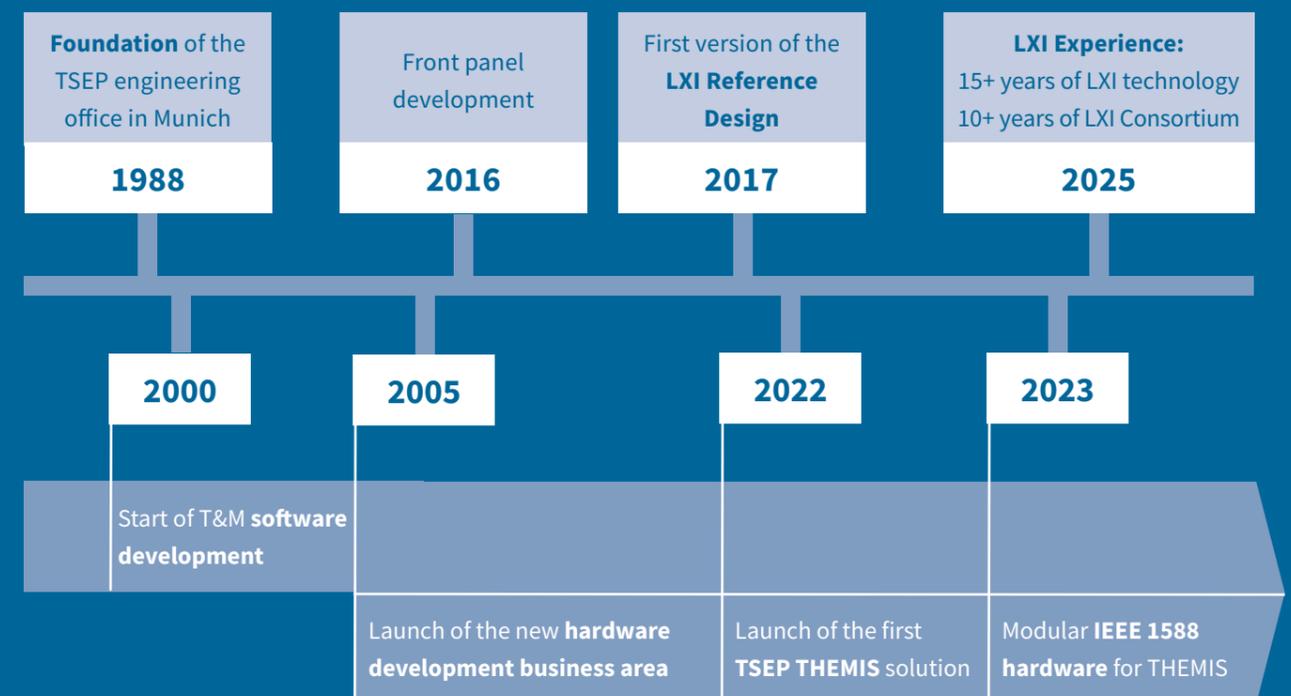
## Our Expertise:

- Almost 40 years of know-how
- 40+ employees
- Quality “Made in Germany”
- Central location in southern Germany
- Everything from a single source
- Faster, more agile, more efficient solutions



**OUR GOAL IS TO SOLVE YOUR COMPLEX MEASUREMENT TASKS AND WORK TOGETHER TO TACKLE EXCITING MEASUREMENT CHALLENGES.**

DR. SIMON PLAZOTTA, COO



# OUR VISION – INNOVATION MADE MEASURABLE.

## Our mission

Developing requirement-specific, high-quality test & measurement solutions and subcomponents that can be easily and quickly integrated into existing systems.

## Our values

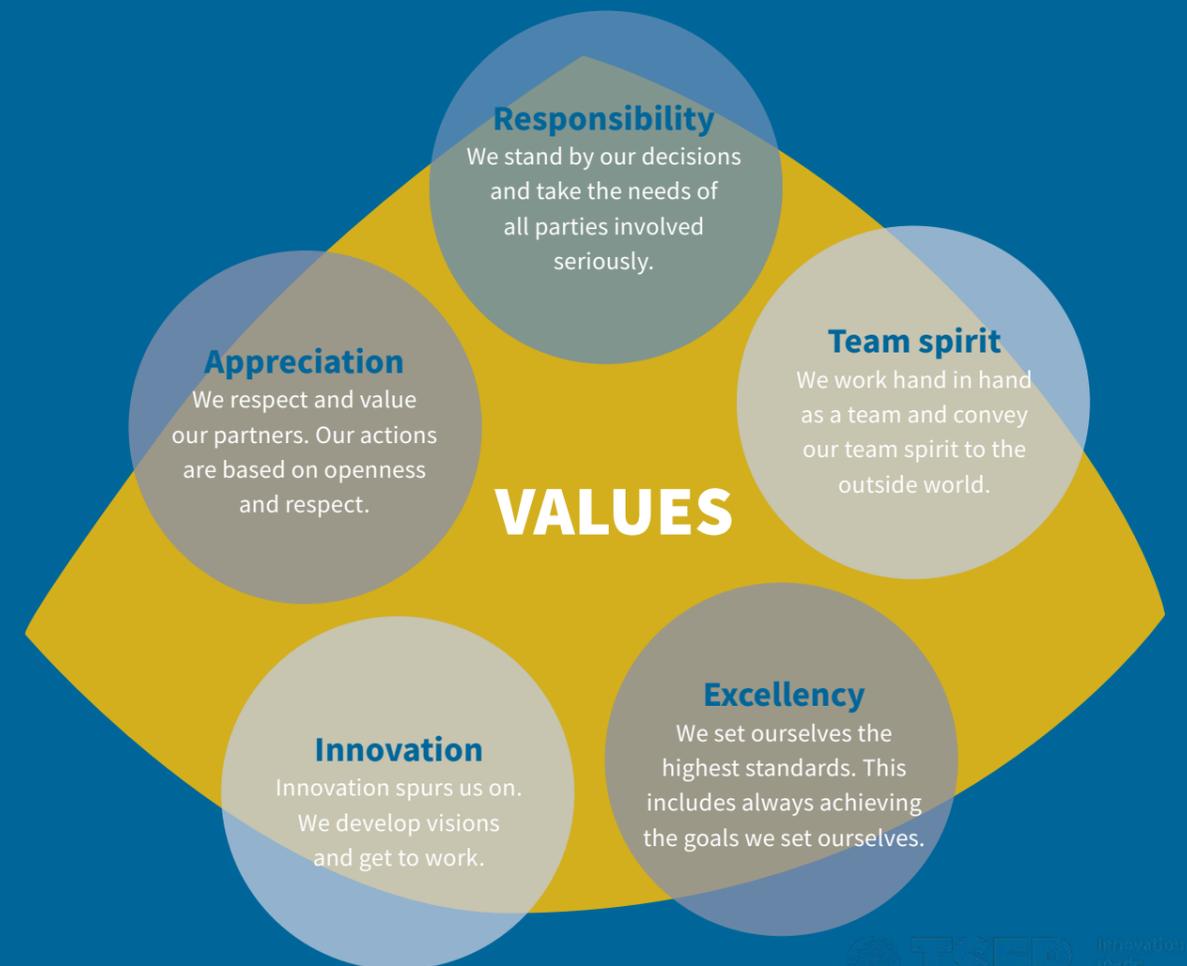
The values define how we interact with each other and form the basis on which TSEP aims to be successful. Sustainable, socially balanced, and responsible corporate governance is particularly important to us at TSEP.

We support innovators worldwide by providing global quality standards – for innovations in the test and measurement industry.



# TSEP

Innovation  
made  
measurable.

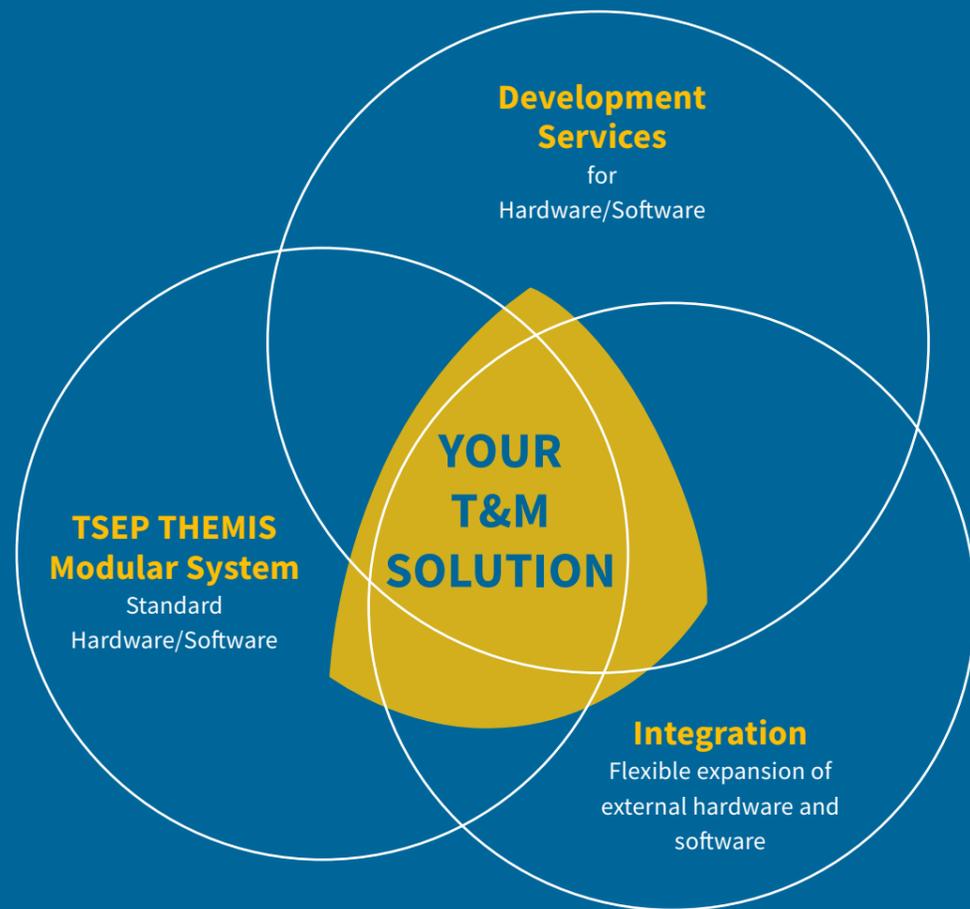


# TSEP SOLUTIONS: CUSTOMIZED T&M SOLUTIONS

The demands placed on test and measurement systems are growing: new standards, increasing complexity, and higher precision. Standard solutions quickly reach their limits, while completely new developments are often too costly and time-consuming.

With our **TSEP Solutions**, we offer our customers everything they need for their T&M requirements – from our customized TSEP THEMIS test and measurement system, which is based on proven hardware and software modules and well-known standards, to various development services for hardware and software.

From idea to tested product – with TSEP you develop safely, efficiently and with a future-oriented approach.



# TSEP THEMIS: YOUR MODULAR TEST AND MEASUREMENT SYSTEM

With **TSEP THEMIS**, we have developed a modular test and measurement system for you: The flexible modular system consists of hardware and software components, allows for individual customization, and is based on proven standards (IEEE, LXI).

Our experienced development team combines these standard modules with customized services. This results in solutions that are both technically precise and economically sustainable – and that can be flexibly adapted to future developments.

## Customized T&M solutions

- **Open & modular** – Compatible with common interfaces and adaptable to measurement tasks.
- **Plug & Play** – Ready-to-use modules accelerate integration into existing infrastructures.
- **Efficient** – Reusable frameworks shorten development time and reduce costs.
- **Future-proof** – Scalable and expandable for future standards and requirements.

Flexible. Modular. Future-proof. That's our THEMIS T&M system.

## TSEP Hardware and Software products

Our T&M products can be easily integrated as independent components into your existing test racks or systems and function as a stand-alone solution for your test and measurement system.

In addition, the products are fully compatible with our THEMIS system. Depending on requirements, several products can be combined thanks to their modular structure and work as an integrated system.

## TSEP PRODUCTS

### HERAKLES

Software for the audit-proof definition, editing, and execution of test and measurement sequences. It offers both real-time monitoring and flexible subsequent evaluation, as well as features such as comprehensive status management for test plans.

### POSEIDON

Remote system with SCPI-99 compliant parser. POSEIDON optimizes command execution and data transfer at all systematic levels, supports USB-TMC and secure communication channels such as HiSlip 2.0 and TLS, among others.

### KRATOS

Installation and maintenance tool for software applications on devices or THEMIS test and measurement systems. KRATOS contains all necessary packages and enables license management as well as service and maintenance work.

### CHRONOS

Extends the hardware with IEEE 1588 functionality for time-synchronous measurements. Control is achieved via the "IVI Trigger and Sync API" and includes software components as well as one FPGA per plug-in card.

### TRIGGER&SYNC

Enables time synchronization between measuring devices from different manufacturers (IEEE 1588) and configuration of the associated time-dependent triggers.

### KERBEROS

Hardware and software solution for self-certification of measuring instruments according to the current LXI standard. KERBEROS is the only tool worldwide for certifying devices according to the current LXI 1.6 standard.

### USB-TMC ADAPTER

Turns any conventional USB port into a USB-TMC port. The adapter is built into the device or is available as an external adapter.

### IMAGES

Customized operating systems such as Windows, Yocto, or Linux.



# TSEP THEMIS IS THAT FLEXIBLE

## THEMIS Hardware: Standard enclosures and modules/cards

The TSEP THEMIS modular system offers a selection of standardized enclosures, modules, and cards that can be adapted to your individual needs. In addition, we develop customized enclosures, hardware modules, and cards for your specific test and measurement tasks quickly and cost-effectively.

## THEMIS Software: Customized and ready to use

Our standardized, hardware-oriented, and time-critical software components are also part of the TSEP THEMIS modular system. They are available for various (real-time) operating systems such as Linux, Windows, or RTOS and can be adapted to your T&M requirements. For your specific test and measurement tasks, we also develop custom software modules, including drivers, protocols, GUIs, and databases.



### Standard as a basis

The TSEP THEMIS standard enclosures – desktop (tabletop device) and rack (19" / 3HE) – contain the basic measurement infrastructure (power unit and CPU unit). They offer up to 3 (THEMIS desktop) and up to 7 (THEMIS rack) slots for modules/cards.

### Reshuffle the cards

In addition to the THEMIS standard modules/cards, PXI/PXIe measurement cards and modules as well as individual plug-in cards can also be integrated. When THEMIS is equipped with a PXI/PXIe backplane, numerous standardized PXI/PXIe measurement components such as digitizers, oscilloscopes, or network analyzers can be used. The result is hybrid solutions based on THEMIS standard components.

### Expand modularly

If your next project requires more capacity, multiple THEMIS devices can be quickly and easily connected to form a single logical device. Thanks to its flexible architecture, various THEMIS devices can operate as an integrated system. This allows you to expand your setup modularly without replacing existing systems.

### Do your applications exceed the standard?

As an alternative to the TSEP THEMIS standard enclosures, we develop individually customized form factors for your specific test and measurement tasks – from “small” (embedded) to “large” with several cascaded THEMIS devices, for example. We also develop custom modules/cards for integration into the THEMIS standard enclosures. These can be expanded or modified at any time.

# PROOF OF CONCEPT WITH THEMIS: KERBEROS MIGRATION IN 1 MONTH

For the current generation of **KERBEROS**, we migrated the entire hardware and software base of the previous version, KERBEROS 1.0, to our modular THEMIS platform. The entire process – from analysis to finished device – took less than a month.

## What is KERBEROS?

With KERBEROS 2.0, TSEP offers the world's only LXI certification suite for the current LXI version 1.6. Hardware and software form a compact overall system that automatically tests devices according to the LXI standard – including LXI extended functions such as IPv6, HiSLIP, security, and IEEE 1588. Whether conformity tests, regression tests or developer support: KERBEROS 2.0 delivers reliable results and supports manufacturers in the fast and independent certification of their measuring instruments.

## Migration based on THEMIS

The migration from KERBEROS to THEMIS was made possible by the consistent use of standard components and proven development templates:

- **Hardware:** Replacement of obsolete assemblies and integration of new modules based on existing THEMIS components and PCB layouts.

- **Software & Embedded:** Conversion of the toolchain and minimal adjustments to low-level OS accesses. Thanks to the consistent application of SOLID principles, the migration effort was extremely low.
- **Commissioning:** Use of standardized THEMIS processes for testing, validation, and release.

## The result

A modern, high-performance certification suite that retains all the functions of KERBEROS 1.0, integrates additional features, and ensures long-term availability.

For our customers, KERBEROS 2.0 is both a product and a proof of concept: it demonstrates that THEMIS can be used to develop or migrate complete systems in a very short time – quickly, cost-effectively, and with minimal risk.

From idea to device in record time – with TSEP THEMIS as the platform for your next development.

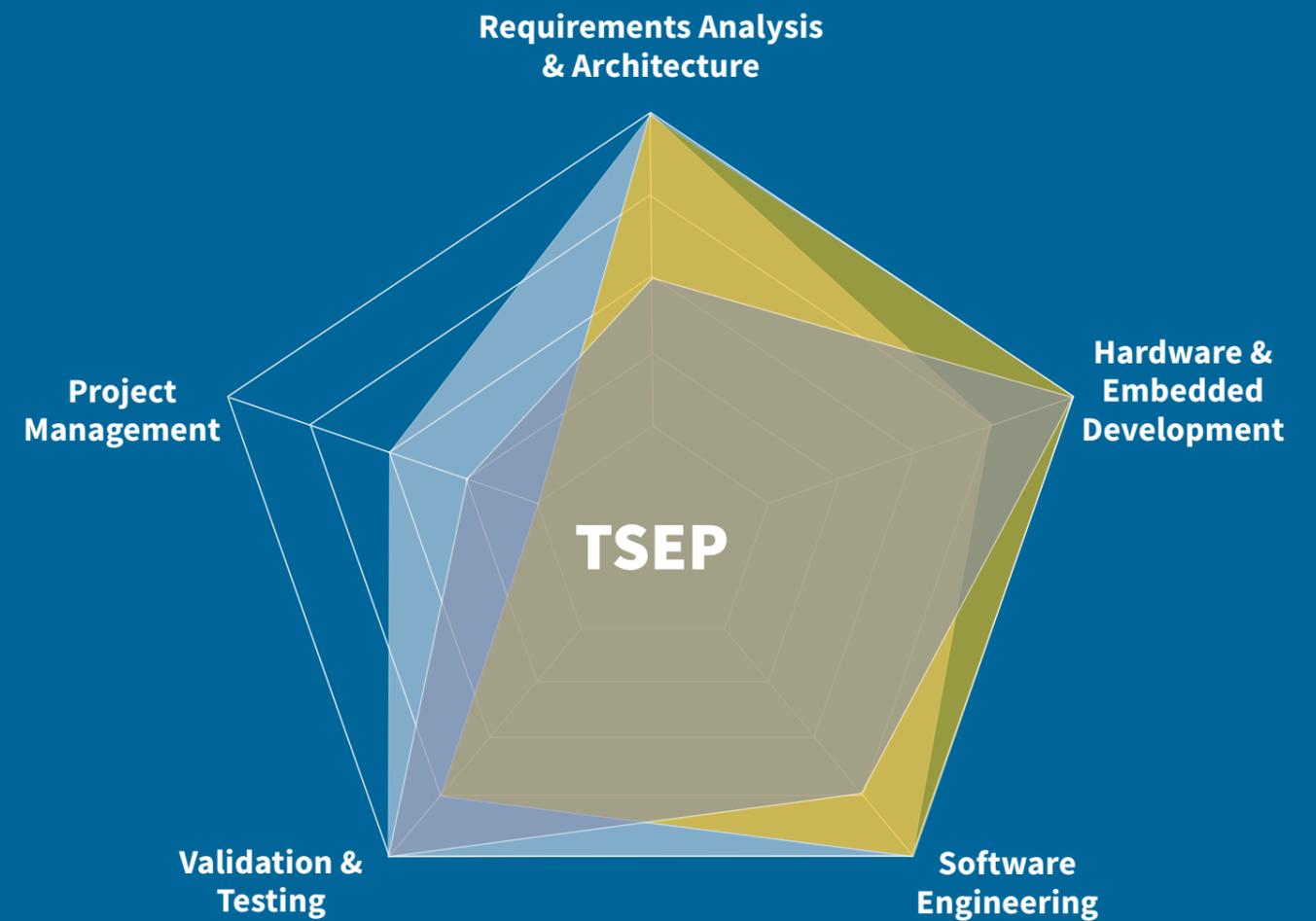




# DEVELOPMENT SERVICE FOR HARDWARE AND SOFTWARE

We develop customized solutions for test and measurement equipment – from hardware design and embedded software to intuitive user interfaces and automated test frameworks.

To achieve this, we combine years of experience with modern methods and ensure your systems remain reliable, expandable, and future-proof. Tailored to different application markets.



Excerpt from example  
customer projects:



Test & Measurement industry  
Electronics industry  
Automotive industry

**Modern.  
Expandable.  
Future-proof.**



## APPLICATION MARKET: TEST & MEASUREMENT INDUSTRY

Manufacturers of test and measurement systems are under constant pressure to innovate. New measurement technology and standards must be integrated, platforms modernized, and complex functions reliably implemented. Users expect accurate results, ease of use, and systems that remain usable in the long term. For development departments, this means keeping large software bases up to date, developing new features, and ensuring the future viability of their platforms.

### We offer development services covering both software and hardware:

- **Modernizing software:**  
From operating system migrations and framework changes to new language standards – we reliably update even code bases with millions of lines.
- **Developing hardware:**  
From facelifts for obsolete components to completely new developments, including circuit designs, layouts, and embedded software for microcontrollers, everything is tailored precisely to your platform and measurement task.
- **Extending functions:**  
We don't just implement specifications, we understand measurement methodology and every-day laboratory work. This results in subcomponents, wizards, and dialogs with real application relevance and measurable added value.
- **Simplifying deployment:**  
Remote installations, hardware updates, and automated software setups accelerate rollouts and reduce risks.

### Our application example:

We completely redesigned an obsolete **controller board** for a manufacturer – including redesigning the layout, upgrading the embedded software from Bare Metal to FreeRTOS, expanding the access interface, and implementing comprehensive regression tests. We took a structured approach: we recorded the current status, defined the target status together with the customer, developed the solution, and tested it continuously.

This ensured that all previous functions were retained, performance and usability were improved, and the platform remains available in the long term.

### The result:

A modern measurement system that remains technologically advanced and competitive – because modernization, obsolescence management, and practical enhancements go hand in hand.

**THE MODERNIZATION WAS SO WELL THOUGHT OUT THAT WE WERE ABLE TO TRANSFER THE CONCEPTS DIRECTLY TO OTHER DEVICE FAMILIES – AND MADE THE ENTIRE PORTFOLIO FUTURE-PROOF.**

DR. SIMON PLAZOTTA, COO

**Fast.  
Reliable.  
Reproducible.**

## APPLICATION MARKET: ELECTRONICS INDUSTRY

Electronics are becoming increasingly complex. Digital protocols, analog signal paths, and demanding test sequences are subject to strict quality requirements – and the need to ensure consistent functionality across variants, releases, and hardware revisions. For developers, this means that reliable results must be available at an early stage – not only for initial functional testing, but also for continuous regression testing to reliably validate every adjustment to hardware, components, or software.

**Our test and measurement equipment solutions combine digital analysis with high-precision analog measurements.**

**They enable:**

- Automated sequences for repeatable tests
- Combined performance and stress measurements
- Seamless integration into existing laboratory infrastructures

**Our application example:**

A leading electronics manufacturer relied on a requirement-specific test system in the preliminary development phase, which we developed based on our modular THEMIS architecture.

This **hardware-in-the-loop device** validates storage technologies such as SSDs (NVMe, mSATA, M.2), USB sticks, SD cards, and PCIe modules under realistic conditions and with reproducible results. This enables manufacturers to ensure company-wide and across platforms that the selected storage media function reliably even at high data rates and throughout the entire service life of the device.

The decisive factor here is not the fast time to market, but the certainty that regression tests provide clear evidence and that approvals for new variants are well-founded.

**THE SYSTEM WAS PRODUCTIVE EARLY ON – AND THANKS TO ITS MODULAR ARCHITECTURE, WE WERE ABLE TO EASILY RETROFIT NEW STORAGE TECHNOLOGIES AND SCALE THE SYSTEM. THIS LED TO A HIGHER DUT THROUGHPUT.**

PETER PLAZOTTA, CEO

**Secure.  
Compliant.  
Auditable.**



## APPLICATION MARKET: AUTOMOTIVE INDUSTRY

Automotive electronics have particularly stringent requirements. In addition to functional safety, standards such as EMC, OEM specifications, and long-term audibility play a decisive role. Electronic control units, sensors, and infotainment components must not only function reliably, but also repeatedly demonstrate their conformity across many model series and supplier generations. For development departments, this means that every change to hardware, software, or components must be tested in a reproducible manner – from pre-development to series production approval.

**Our test and measurement equipment solutions combine analog precision with digital protocol analysis. They also enable automated regression testing that delivers consistent results across variants and releases.**

### They offer:

- Reproducible test sequences for standard and specification tests
- Combined analog/digital measurements for complex systems
- Audit-proof documentation for audits and supplier meetings

### Our application example:

For an automotive manufacturer, we developed a **radio test bench** based on our THEMIS architecture, which is already being used in pre-development for the acceptance testing of supplier components. The HERAKLES test bench allows for the individual definition of test parameters, the execution of automated sequences, and the audit-proof documentation of results.

This ensures that new components or software versions reliably comply with standards and that deviations are quickly detected. The manufacturer benefits from clear evidence in audits and shorter release cycles, even when standards or component versions change.

**A KEY ELEMENT WAS THE PROFESSIONAL EXCHANGE ON EQUAL TERMS. THIS ENABLED US TO DEVELOP THE RIGHT MEASUREMENT PROCESSES AND TO TEST THE PRODUCT IN ITS ENTIRETY – NOT JUST INDIVIDUAL FUNCTIONS.**

DAVID COURTNEY, CTO

# OUR FORMULA FOR SUCCESS – YOUR COLLABORATIVE ADVANTAGE

5 Reasons why our customers rely on us

**Our promise:** With TSEP, you gain a partner that combines technological excellence, efficiency, and customer focus. This is how we lay the foundation for a successful, long-term collaboration.

**40 years of experience**

Expertise in hardware and software development for test and measurement technology

**Everything from a single source**

Standard components, custom designs, turnkey systems

**Efficiency through standardization**

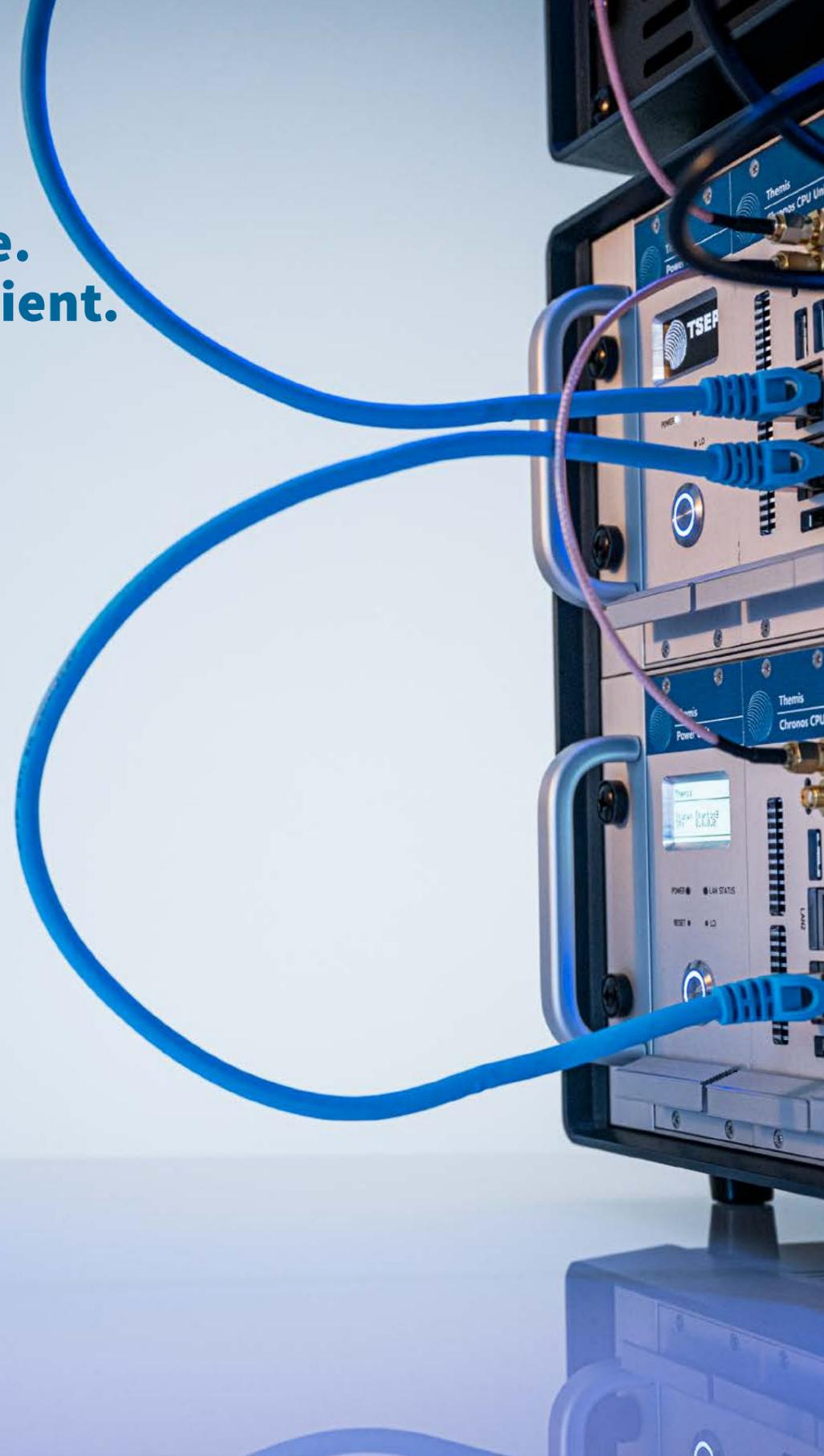
Modular THEMIS platform, fast and cost-effective

**Customer-oriented**

Solutions that work

**Made in Germany**

**Faster.  
More agile.  
More efficient.**



# COLLABORATION WITH TSEP – THE PATH TO YOUR T&M SOLUTION

As an expert, you know exactly what your test and measurement tasks entail and what you need to accomplish them. We will implement the ideal solution for you.

## The milestones to your customized test and measurement system

- Our T&M experts work closely with you to identify your requirements and document them in the desired requirement management system (e.g., specifications and requirements document).
- We create a robust concept for the detailed planning and cost-efficient implementation of your requirements.

- We implement the concept for you based on proven components. In addition, we develop customized hardware and software to meet your requirements.
- We accompany the final setup of your test and measurement solution until successful commissioning.
- Even after that, the TSEP team remains at your side – with competent support and needs-based expansion of your existing T&M system.

## The result: Integrated test and measurement systems from a single source

- Flexible, modular, based on standards
- Integrated and user-friendly
- Quick to implement
- Cost-effective – functionally and cost-optimized
- Service and support from Germany



## EXAMPLE PROCESS: FROM CONCEPT TO YOUR FINAL T&M SOLUTION



## FURTHER INFORMATION



[TSEP.COM/EN](https://www.tsep.com/en)

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### Technical Software Engineering Plazotta GmbH

Our customers include well-known manufacturers of test and measurement systems as well as users from numerous different industries who benefit from the high efficiency and reliability as well as measurable time and cost savings of our customized T&M solutions.



# TSEP

Innovation  
made  
measurable.

Technical Software Engineering Plazotta GmbH · 85283 Wolnzach, Germany  
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