System-based measurement

CSM: Company, Technology and Products

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CSM: System-based measurement

Fast, flexible, precise and reliable measurement is ensured, with CSM! That's our promise to you! To this end, we develop, manufacture and calibrate for more than 30 years. We have as a result, developed measurement technology with the highest precision, for distributed and mobile measurements.

You can count on the quality of CSM! We are your reliable partner for the measurements in any environment. Our solutions are designed for extreme applications. This means: You are offered measurement technology that you can rely on, even for the most difficult ambient conditions.

You can rely on the experience of CSM. Our elaborate system of measurement modules, data loggers and software offers the greatest flexibility for your measurement setup. The wide-ranging compatibility of our measurement modules with widespread DAQ software, saves you time during installation and integration and thus ensures faster results.

In this brochure you will learn more about the benefits and added value of the measurement technology from CSM. You can certainly see for yourself how you can use it to solve your measurement tasks easily and efficiently.

Your added value at a glance

Strong in the decentralized measurement area

Thanks to protection class IP67, the suitability for ambient temperatures from -40 °C up to +125 °C and the minimized design size, CSM modules can be directly installed in the engine compartment.

Digitizing the measurement signals close to the point of measurement reduces interference and cabling costs.

Precise measurement hardware

Our core competence: over 30 years of experience in the design and production of FPGA-based low-power measurement hardware. The result: high-precision, long-term stable, extremely compact measurement modules with extremely low temperature drift over the entire operating temperature range.

Clever in the test bench

Assembly with the DUT on pallets: The measurement setup can be prepared and configured outside of the test bench. This provides for more valuable test bench runtime.

Compatible system

CSM makes the work of the users as easy as possible: The measurement technology hardware is compatible with a variety of commonly used connector systems and software environments.

Identical measurement hardware for vehicle and test bench

CSM CAN and EtherCAT® modules are compatible with widely used vehicle and test bench software. This allows for swift replacement and makes the measurements of the vehicle and test bench 1:1 comparable.

Elaborate product design

Thanks to the clever design forms, the measurement setups are scalable and can be quickly adapted in a few simple steps, to new or changing measurement tasks.

Complete solutions from one source

With Vector Informatik as a software partner, CSM offers complete solutions for data acquisition and visualisation (measurement modules, DAQ software, interfaces, and accessories) as well for the evaluation and documentation.

Made in Germany

▸ In-house development, production, sales and support

▸ Short delivery times thanks to the large stock of finished and semi-finished components

▸ In-house calibration with DAkkS accreditation

▸ Throughput times for maintenance and calibration is extremely low – modules can be quickly sent back to the facilities of the customer

Simplifies and speeds up measurement applications

High degree of user-friendlyness: Thanks to open standard interfaces and a configuration software which has been deliberately kept simple, CSM modules are quickly installed, integrated and configured.
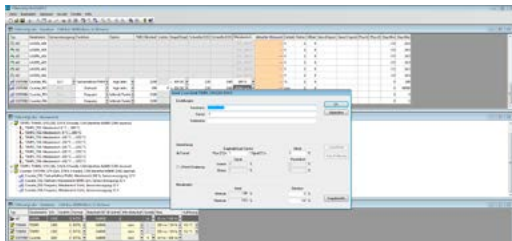
High consulting and problem-solving skills

Our expert team for application support and consulting, with years of experience in the project business, develops together with the customer the ideal solution for demanding measurement tasks.

International sales and support network

Subsidiaries, partners and selected distributors worldwide: This network is among others continuously expanded through the partnership with Vector Informatik.

Secure investment

Extremely long service life of measurement modules and data loggers through continuous product development and a high degree of standardization: Even modules which have long been in use, can be configured with the latest CSM software.

Multitude of measurement applications for vehicles and machinery

▶ Cars, construction and agricultural machinery, trucks and special vehicles, aerospace, rail vehicles, watercraft, e-mobility, wind turbines, …

▶ Powertrain, thermal testing, operational stability, component testing, endurance run, high-voltage test.

Special high-voltage safe measurement systems

The high-voltage safe measurement systems from CSM are ideal for the safe acquisition of analog signals and temperatures (Thermocouples of type K, PT100 and PT1000) on high-voltage components of electric and hybrid vehicles.

Special harsh-environment measurement modules

Designed for use in particularly demanding environmental conditions such as salt spray and outdoor use in all weather conditions, for the development of commercial vehicles, construction and agricultural machinery, water vehicles, cranes and military vehicles.

»*We measure the value of a new development based on the added value for our customers. What counts are only the benefits that the customer draws from our modules.*«

Benedikt Thum, Head of Development

Our STGMM for strain gauge sensors simplifies operational stability measurements under real driving conditions.

CSM: quick, flexible and reliable measurement

One of the core competencies of CSM, are mobile, robust and reliable measurement modules for any given measurement environment. We for years use worldwide technological standards, particularly in the field of mobile vehicle measurement technology.

Regardless of whether it involves mobile use in the vehicle during the winter testing in northern Sweden, in the blistering heat in Death Valley, or close to the sensor installed in the test bench, CSM's measurement modules are always present and reliably deliver precise results.

Thanks to the clever housing concept of the CSM modules, each measurement setup is scalable, can be modularly adapted to the measurement task and is quickly installed in the engine compartment of vehicles, on crane struts or the frame of railway wagons, and thereby always optimally adapted to the highest functionality.

The source of this high product quality are our high standards, implemented through our in-house hardware and software development and production. This enables us to customize solutions Made in Germany and to provide a flexible response to customer needs. We thus consult and accompany users with our know-how, nurtured over more than 30 years, in connection with the most varied solutions, from the design, over the measurement setup through to acquisition and analysis of measurement data.

Systematic compatibility or elaborate complete system

The choice is up to you: Do you only need the compact CSM measurement modules for signal and data acquisition? Then profit from the systematic compatibility of CSM modules with commonly used DAQ software. Or rely on the competence of CSM as a complete provider of your measurement chain: from the measurement modules, over the optimum configuration and DAQ software, to the extensive accessories range of sensors, cables and assembly aids.

## Compatible measurement hardware

Quickly connected, easily configured and integrated: CSM provides compact and robust measurement modules and data loggers which can be embedded in any measurement and software environment.

Compatible with: vMeasure CSM, CANape® and the entire Vector tool chain; INCA®, DiagRA®, DIAdem®, LabVIEW®, MLab®, CalDesk®, IPEmotion®, Vision®, …

The entire measurement chain from a single source

CSM delivers the complete measurement system, thus enabling a continuous structure of the entire measurement chain from the measurement modules over the cables and other accessories through to the safe data recording and visualization, from a single source.

▶ Expert advice for efficient solutions for individual measurement tasks

▶ Diverse variants of measurement modules for various physical variables, different connectors, sensors and cables

▶ CSM DAQ software vMeasure CSM, for measurement data acquisition and visualization, developed in cooperation with Vector Informatik

▶ Reliable stand-alone data loggers for safe data recording

DAQ software vMeasure CSM

CSMcan
CAN interface

CSM measurement module

CSM data logger
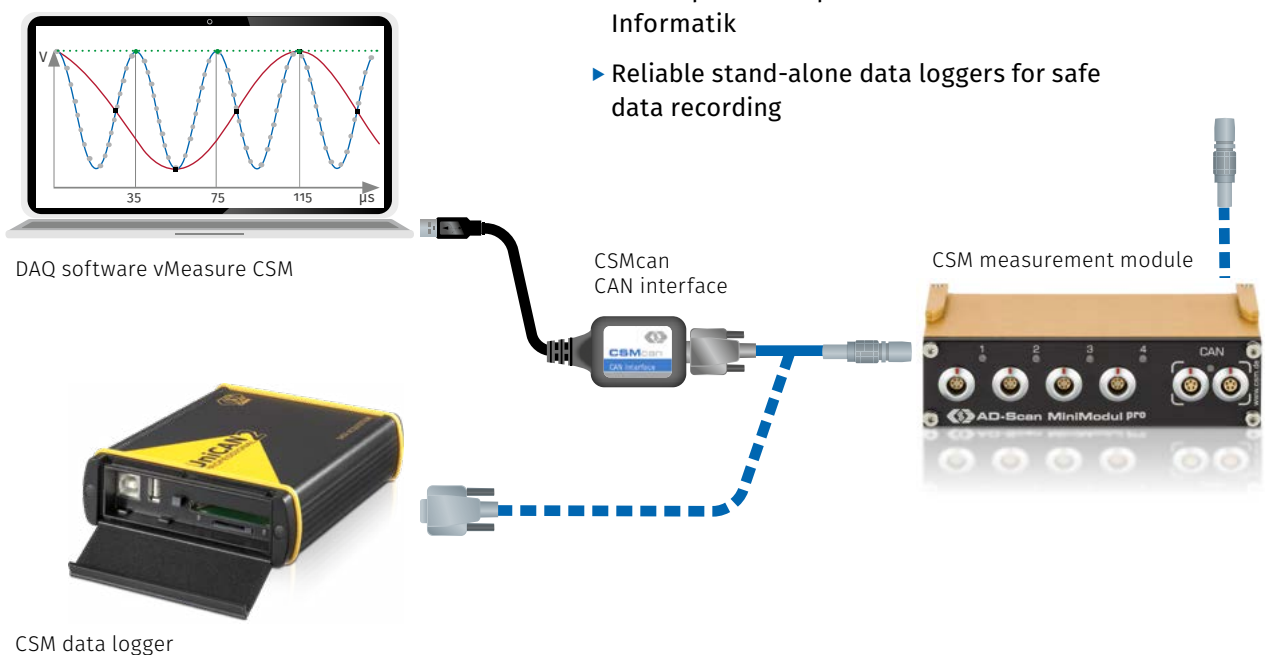
CAN and EtherCAT®: Measurement technology for extended application possibilities

CSM uses different technologies to offer you optimal solutions for your measurement tasks.

Highly proven are the robust and compact CAN measurement modules. Regardless of whether it involves mobile measurements or the test bench, CSM's CAN modules measure precisely and reliably. They are thereby easy to handle and quick to install; ideal for slowly changing measured values (1 Hz to 10 kHz): temperatures, pressures, mechanical loads and rotational speeds.

However, the increasing complexity of vehicle electronics and other tasks require, faster, highly precise and synchronous measurement data recording with higher bandwidths than that which can be provided by a CAN bus.

By using EtherCAT®, CSM integrates an established protocol from the automation technology sector in the distributed measurement technology. EtherCAT® sets new standards in terms of bandwidth, maximum number of channels and synchronisation of measurement signals. The ECAT MiniModules from CSM thus provide for mobile, synchronized multi-channel applications with more than 1,000 strain gauge or acceleration sensors as well as high speed measurements with data rates of up to 800 kHz per channel. CSM has also taken full advantage of the CAN MiniModules in the ECAT modules: robust construction, minimised design, open standard interfaces and easy handling.

XCP-Gateway: Connecting two measurement worlds

XCP-Gateway +CAN for the connection of ECAT and CAN measurement modules from CSM

With the protocol converter XCP-Gateway, CSM combines the CAN- and the EtherCAT® measurement worlds and thus enables easy-to-handle measurement setups. The gateway integrates CAN and EtherCAT® measurement data in one common data bus on the basis of the standard XCP-on-Ethernet. This speeds up the measurement setup and saves resources, since only one measurement chain is required.

Measurement applications and areas of application

Areas of application

Passenger cars, construction and agricultural machinery, trucks and special vehicles, E-Mobility, aviation and aerospace, rail vehicles, watercraft, development of high-voltage components, wind turbines …

Measurement variables

Voltage, current, temperature, frequency, acceleration (IEPE), pressure, strain (strain gauge), …

The precise acquisition of mechanical stresses allows the efficient designing of cranes and wind turbine blades.

Typical measurement applications

in the powertrain and HVAC sector, for thermal- and component testing, endurance, high-voltage and fleet tests:
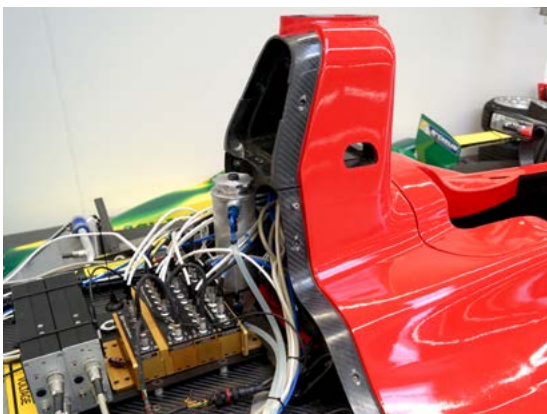
Reliable acquisition of analog signals: CSM measurement module in the development of a Formula E-race car; Picture: ABT Sportsline GmbH

▶ Thermal management (thermocouple, RTD)

▶ Sensors with voltage output (pressure, acceleration, displacement, …)

▶ Mechanical stress, e.g. multi-channel applications with more than 1, 000 strain gauges

▶ Rotational speed (PWM, event counter etc.)

▶ Safe measurements on high-voltage components of electric and hybrid vehicles (U, I, temperature, acceleration, …)

▶ Exhaust (Lambda, NOx, NH3, …)

▶ Synchronous high-speed measurements with up to 800 kHz per channel: ideal for high-resolution search and analysis of faults

Technical expertise from the ground up

Dr.-Ing. Winfried Koch, Managing Director of CSM GmbH, on the essence of CSM, its measurement technology solutions and the benefits for customers and users

What is at the core of CSM?

» A very high level of technical expertise, coupled with 30 years of experience, particularly in analog technology, in the FPGA design, embedded programming and driver development. We place great emphasis on the lowest possible power consumption of our measurement modules. This is very important as the basis for high precision measurements, even in extreme ambient temperatures.

On the software side, our focus is in highly efficient embedded programming as well as the development of configuration and driver software for our hardware products in conjunction with various software protocols and interfaces.

This high level of expertise continues down to our own production, which pays off in the end, in the form of durable, highly reliable products.

» *We offer products that are second to none in terms of functionality, technical features and price-performance ratio.* «

What does this precisely mean?

» In our early days, there was no such convenient and high performance hardware and software components as today. In the case of our early developments, we had to rely on significantly simple components and software tools and make do with minimal storage space. This compelled us to the extremely efficient handling of resources. From which we

still benefit today. We, for example, compiled our own operating system. It is extremely efficient. This knowledge and experience of our long-term employees coupled with today's possibilities and the fresh know-how of our young colleagues, is what constitutes CSM.

What added value do the customers derive from it?

» We offer our customers products that are unparalleled in terms of functionality, technical features and price-performance ratio. We place great emphasis on sleek, robust products with a clearly laid out functionality. This is for example reflected in our CAN- and EtherCAT® measurement modules. They are extremely compact, efficient, easy-to-use and quick to integrate into measurement setups, regardless of whether this is directly in the engine compartment of a vehicle, in the test bench on a pallet or on the jib of a crane.

Where do the developments at CSM come from?

» Many of our developments are customer-driven. There are entirely new innovative developments or sometimes "only" advanced features which we develop together with and for our customers. Standard products almost always arise, such as our high-voltage temperature measurement module HV THMM. The Liccon data logger of our customer Liebherr, on the other hand, is a customized solution, whose availability we guarantee for years. When it comes to new tasks, we always critically assess the customer's benefit and then propose the most appropriate solution. In this context, we often have to tread new paths. Here we can draw on our years of experience in the project business and from different areas in the measurement and data technology sector. And again: The goal is a simple and pragmatic solution which facilitates the work of our customers.

> »*Compatibility is an important factor.*
> *Our measurement modules can be quickly integrated into a variety of software environments and measurement applications. Upon request, we also offer our customer various device versions for different sensors and connectors.* «
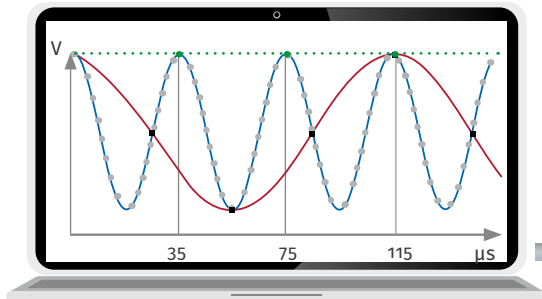>
> Christoph Mühleis, Head of Product Management and Marketing

The CAN temperature measurement module THMM 16 classic is available in different variants for thermocouples of type K, J and T.

System-based measurement

Overview of the CSM measurement technology

Data loggers

Reliable measurement data recording and transmission via radio modem: this is what UniCAN 2 data loggers from CSM offer.

CAN bus

Software for configuration, measurement and visualization

With CSMconfig and vMeasure, CSM offers software solutions from the module configuration through to the visualization of the measurement results. Alternatively, the CSM modules can be integrated into third party software, such as CANape®, INCA®, DiagRA®, DIAdem®, MLab® etc.

XCP-on-Ethernet

CAN bus

XCP-Gateway

The interface between the XCP-on-Ethernet-supporting DAQ software and the EtherCAT® measurement modules (CAN modules optionally) from CSM. Configuration via A2L description file or directly via vMeasure CSM, CANape® or INCA®; assigns extremely precise time stamps, is highly efficient and synchronous.

EtherCAT® MiniModules

Ideal for distributed, synchronous measurements: e.g. multi-channel applications with more than 1,000 strain gauges / accelerometers and applications with data rates of up to 800 kHz per channel. Like the CAN modules, ECAT modules feature the MiniModule design and ruggedness.

CAN MiniModules

Proven, robust and highly accurate from -40 ° C up to max. +125 °C ambient temperature: safe and easy measurement of electrical voltages, rotational speeds, temperatures, mechanical stresses, etc.

Thanks to protection class IP67 and ultra-compact design, ideal for distributed measurements in test drives and test benches.

CAN bus

High-voltage measurement systems

Measurements on high-voltage components with certified safety – from the sensor up to the user: high-voltage measurement modules for temperature measurements (K-type thermocouples and PT100 / PT1000 sensors) and analog voltages; available in both MiniModule housings and 19'' slide-in units.

Exhaust measurement technology

CAN measurement modules and analyzers for Lambda, NOx, O2 and NH3 from ECM: ECM is the US market leader for robust and precise exhaust measurement technology in vehicles and test benches. CSM has taken up the ECM modules in its own product portfolio.

CAN-based measurement systems

Proven, resilient and extremely accurate: CAN measurement modules from CSM are in continuous use worldwide; for efficient measurement of temperatures, electric voltages, currents, mechanical stresses, accelerations, frequencies and rotational speeds.

The advantages at a glance

▶ Designed for use in distributed measurement applications in the engine compartment, in the trunk, on housings or bodywork

▶ Compact, robust, insensitive to extreme and changing environmental conditions

▶ Very high measurement accuracy over the entire operating temperature range from -40 °C up to +125 °C: extremely low power consumption and intrinsic heating

▶ Easy integration and installation for quick measurement setups

▶ Open standard interface for quick integration into existing measurement and software environments

▶ Easy configuration

▶ Clever in the test bench: Module can be easily mounted on pallets. A DUT can be prepared outside of the test bench.

Optimized to be applied in distributed measurements: CSM MiniModules offer a wide range of application.

Modules for any given measurement task

▶ Measurement of analog signals: product group ADMM for sensors with analog voltage output

▶ Temperature measurements: product group THMM/PTMM for thermocouples (type K, J, T) as well as PT100- and PT1000-Sensors for temperature measurements

▶ Measurements of frequencies and pulse sequences: product group CNTMM – for the measurement of frequencies and pulse width, incremental displacement measurements, angle of rotation, position measurements, event counts and period measurements

▶ Measurements of mechanical strain: product group STGMM for the measurements with strain gauges in full-, half- and quarter bridges

▶ Simulation of components and data transfer to test benches: product group OUTMM for the conversion of CAN bus values into physical variables

High-voltage safe measurement systems

Measurements on high-voltage components with certified safety – in the test drive and on the test bench: The CSM High-voltage measurement systems enable the safe and precise acquisition of analog signals and temperatures in high-voltage environments, particularly in electric and hybrid vehicles.

▶ AD measurement modules for the acquisition of analog signals (voltage, humidity, pressure, acceleration etc.)

▶ Temperature measurement modules with NiCr-Ni-temperature inputs (Type K)

▶ PT measurement modules for accurate temperature measurements with PT100 and PT1000 sensors

▶ For the application in test drives and test benches: CSM offers high-voltage safe measurement systems in MiniModule design and as 19'' slide-in units.

Exhaust measurement technology

Reliable and precise acquisition of exhaust values: As to the measurement of Lambda, O2, NOx, and NH3 in vehicles with petrol, diesel, CNG or LPG engines, CSM has expanded its product portfolio to include the CAN-based exhaust measurement modules and analysers from ECM. Similar to the CSM modules, they are extremely robust and can also be installed in the engine compartment.

A compact, very easy-to-read display with fluorescent digits is available for the visualization of the measurement values.

The exhaust measurement module LambdaCANc is a compact CAN module for the connection to numerous Bosch and NTK broadband lambda probes for the acquisition of Lambda and O2.

ECAT ADMM 4 HS800 with data rates
of up to 800 kHz

EtherCAT® measurement systems

Larger bandwidth for more channels and higher data rates

With the EtherCAT®-based MiniModules, CSM offers measurement technology for applications that go beyond the requirements of CAN bus performance capabilities. ECAT measurement modules thus enable synchronous high-speed measurements with data rates of up to 800 kHz per channel as well as multi-channel applications, e.g. with over 1,000 strain gauge points of measurements and / or acceleration sensors.

The ECAT modules are ideal for distributed installation for operational stability applications, in the area NVH (Noise, Vibration and Harshness), as well as in material and component tests etc. Thanks to data rates of up to 800 kHz per channel, they can also be used as "mobile oscilloscopes" for troubleshooting purposes in vehicles.

Advantages of the EtherCAT® MiniModules at a glance

▶ Highly accurate time-synchronous data recording of all signals (Distributed Clocks)

▶ High Ethernet bandwidth (100 Mbit/s) for more measurement channels

▶ Very high sampling rates (up to 800 kHz per channel)

▶ Many measurement variables with sampling rates of 1 kHz upwards and synchronous data acquisition

▶ A distance of up to 100 meters between individual modules is possible

▶ The advantages correspond to those of the CAN-based MiniModules

▶ Identical MiniModule form factor, robustness (IP67) and operating temperature range

▶ Very high measurement precision over the entire temperature range

▶ Easy integration and installation for quick measurement setups

▶ Modules can be easily mounted on pallets: compatible with the CAN MiniModules

▶ Open standard interface for quick integration into existing measurement and software environments

EtherCAT®-based MiniModules for various measurement tasks

Synchronous measurement of sensors with voltage output

Product group ECAT ADMM

▸ Data acquisition rate of up to 800 kHz per channel

▸ For "fast" analog sensors such as IEPE-sensors and microphones

▸ Operating temperature range from -40 °C to +125 °C

Synchronous measurements of mechanical stresses

Product group ECAT STGMM

▸ Strain gauge measurements in full-, half- and quarter bridges with TEDS

▸ Up to 600 strain gauge-points of measurement per XCP-Gateway

▸ Up to 10 kHz per channel

XCP-Gateway

▸ Protocol converter from EtherCAT® and CAN to the standard protocol XCP-on-Ethernet for the connection to data acquisition software such as vMeasure CSM, CANape®, INCA® etc.

▸ EtherCAT®: time synchronization of all measurement signals better than 1 µs

▸ XCP-on-Ethernet: accuracy of measurement signal time stamps is 1 µs

▸ Suitable for the connection of up to 100 ECAT modules with data rates up to 2 kHz per channel or for up to 25 ECAT modules with higher measurement data rates of up to 800 kHz per channel[1]

▸ 2 CAN interfaces for the connection of CSM CAN bus measurement modules and CAN sensors

▸ Synchronous application of multiple XCP-Gateways is possible

[1]In the case of measurement data rates of 800 kHz per channel, only one ECAT module is possible.

The ECAT measurement modules from CSM share all advantages of the CAN-based MiniModules.

From top to bottom:
ECAT STGMM 6,
ECAT ADMM 4 HS800,
ECAT ADMM 4 as well as a
XCP-Gateway +CAN

Harsh-environment measurement modules and cables

Designed for use in particularly demanding ambient conditions, such as salt spray and the outdoor use in all weather conditions. For the development of commercial vehicles, construction and agricultural machinery, water vehicles, cranes and military vehicles.

The advantages at a glance

▶ Robust aluminium housing with protection class IP68

▶ Connector concept pursuant to the Advanced Military Standard (AMC)

▶ Shock and vibration tests pursuant to DIN EN 60068-2 (confirmed MIL-STD 202G)

　▶ Vibration test from 10 Hz up to 2000 Hz with up to ±20 g
　▶ Shock test with ±75 g

Precise measurements in any environment: The harsh-environment-modules from CSM enable reliable measurements in harshest off-highway applications.

Harsh environment measurement modules for various measurement tasks:

▶ Measurement of analog signals: product group CAN ADMM for sensors with analog voltage output

▶ Measurements of mechanical strain: product group CAN and ECAT STGMM for strain-gauge measurements

▶ XCP-Gateway: the interface between data acquisition software and the EtherCAT® measurement modules from CSM

Ideal for fleet management: The UniCAN 2 data loggers enable reliable recording and transmission of measurement data.

CAN data logger

Reliable recording of measurement data and transmission via wireless modem – at any time and everywhere: This is what the microcontroller-based stand-alone data logger with CF card storage from CSM offer. It is optimized for professional use and guarantees a high degree of data integrity in the case of the acquisition of measurement data and control unit information.

Product group UniCAN 2

▶ Fail-safe data recording

▶ Concomitant recording of messages and signals in groups with own trigger conditions

▶ Protocols on CAN (optional) OBD2/EOBD, CCP, XCP, J1939

▶ Functional enhancements (optional) CANsend, CAN Stimulation, Seed & Key

▶ Optimized memory access to CF cards with storage capacities of up to 128 GB

▶ Pre-trigger on a CF card for pre-trigger in the GB range

▶ CF cards can be easily replaced

▶ Remote data transmission via UMTS / GPRS / CDMA modem concomitantly with the data acquisition possible

▶ Integrated GPS receiver

▶ Very low power consumption

▶ UniCAN 2 Professional Tools: easy-to-use and powerful software package, including software for configuration, data post-processing and transfer — ideal for fleet management.

CSM software

vMeasure CSM

The efficient and intuitive to operate data acquisition and visualization software for all CSM measurement modules

▶ With only a few clicks from the configuration to the acquisition and visualization of measurement data

▶ For data acquisition with CAN and EtherCAT® measurement modules from CSM

▶ Online acquisition of measurement data rates of up to **800 kHz per channel** via XCP-on-Ethernet

▶ Linking of measurement data to video, GPS and map data

▶ Online calculation functions

▶ Versatile visualization options with analysis and print function

▶ Data storage in MDF format etc.

CSMconfig (incl. CSMview)

The smart configuration software for all CSM CAN and EtherCAT® measurement modules

▶ Automatic detection of all connected CSM modules with serial number

▶ Free configurability of the CAN bus parameters (Standard or Extended Frame, bit rate)

▶ Offline configuration without connected modules for the mapping of measurement schemes or for the preparation in the laboratory

▶ The integrated application CSMview additionally enables the documentation and validation of the measurement setup. Selected signals can be visualized and output in a PDF file.

Our customers apply CSM measurement technology for the development of their products, which is the decisive factor for their competitiveness. Our modules do therefore not merely function; rather they facilitate the work of our customer.«

Timo Eich, Key Account Manager Measurement Technology

UniConf

The comprehensive software package for the configuration and management of the UniCAN 2 data logger from CSM including data post-processing and transmission

▸ Creation and management of logger configurations

▸ Formatting, reading and writing of CF cards

▸ Setup of the modem operation (SIM cards, SFTP server, …) and remote data exchange

▸ Fleet management

▸ Data transfer for data post processing with standard software

CSM INCA AddOn

Fast and precise measurements with ETAS INCA®: Both software packages CSM INCA AddOn CAN and CSM INCA AddOn ETH allow easy integration of CSM measurement modules in INCA® from ETAS.

▸ CSM INCA AddOn ETH supports the ECAT MiniModules and enables data acquisition with **800 kHz per channel in INCA®**

▸ CSM INCA AddOn CAN integrates CSM's CAN-based measurement modules in INCA® including many ECM exhaust measurement modules

▸ Module configuration directly via INCA®

▸ Import of measurement schemes

▸ Support of ETAS interface modules ES59x, ES891 etc. via CAN- and Ethernet interfaces

CSMcan

CSMcan is a favourably priced CAN bus USB Interface for vMeasure CSM, the data acquisition and visualization software from Vector Informatik/CSM. Due to the API provided, CSMcan can also be used in combination with 3rd-party measurement software.

▸ USB to CAN Interface with one CAN-channel for the use with vMeasure CSM

▸ Capacitively decoupled high-speed adapter

▸ Time synchronization via software (software sync)

▸ Data transfer rates up to 2 Mbit/s

CSMcan is the most favourably priced CAN bus USB interface with USB interface for vMeasure CSM.

Further CSM business divisions

Memory Card Drives

Product group OmniDrive

PC Card drives for computers with USB 2.0 interface: The OmniDrive USB2 product group supports a variety of memory cards complying with the PC Card standard, such as ATA Flash Cards, Linear Flash Cards, CF Cards with adapter, ATA Hard Disks as well as SRAM Cards. The OmniDrive bridges the gap between modern operating systems such as Windows 10 and flash card technologies, which are still widely used in industrial applications.

The compact aluminium housing of the OmniDrive disposes over a flexible, CSM-specific design, which is perfectly tailored for industrial requirements.

Robust PC Card drive for industrial applications: OmniDrive USB2 supports a variety of memory cards.

The advantages at a glance

▶ Supports a wide range of memory cards which are currently used in industrial applications

▶ Extreme operational safety and data integrity

▶ Long-term availability thanks to proprietary FPGA design and in-house manufacturing

▶ Flexibility and security of investment due to easy update options

▶ CSM Professional Software / PC Software Development Kit, own driver development

Industrial grade flash storage media

Since 1990, CSM is a reliable partner for the distribution of industrial grade flash storage media. As a partner of Innodisk and Pretec, CSM offers storage media in a variety of designs and interfaces for fields of industrial application.

▶ High-quality storage media for use in industrial applications: robust and durable (not consumer goods)

▶ Long-term product availability

▶ Automated customer information in case of product changes and discontinuations (PCN/ EOL notifications)

▶ Fixed BOM (Bill Of Materials)

▶ Versatile solutions through the most varied controllers and controlled flashs

▶ Protected against humidity through conformal coating

▶ Customized solutions: for each application a tailor-made product

Programming tools for in-system programming

Product group UniCOM

The programming tool UniCOM is optimized for fast flash programming. It can additionally be used for communication tasks and for functional tests. It provides versatile interfaces to the connected assembly groups. A simple but powerful connection to the production facility is used for the control of the tools.

▶ Fast, reliable flash programming in the production environment

▶ Technical support by qualified engineers with application experience

▶ Long-term availability of hard- and software

▶ User-friendly licensing

▶ Universal hardware

The programming tool UniCOM is optimized for fast flash programming.

»Our customers appreciate that we listen and understand what their task means to them. This makes them a part of our team and us a part of their team «

Kathrin Muth, International Sales Manager

Milestones

1983   Founding of CSM as an owner-managed technology company by Iris and Dr. Ing. Winfried Koch in Filderstadt near Stuttgart. Comprehensive range of business activities, mostly driven by customer projects.

Main activities: automotive measurement technology and medical technology as well as memory card applications

1986   Development of the first xx-Scan measurement module, the Thermo-Scan

Early 1990s   As one of the first companies, CSM relies on data loggers with memory cards (taken up as a new sales division and included in the product portfolio; development of the MEL Sport data logger for the automotive racing sector). Development of memory card drives to be connected to PCs and industrial control systems as well as mobile ECG devices, PC-ECG.

As of 2000   Increased focus on automotive measurement technology. Development of the first CAN-based data logger UniCAN in 2000. One year later, the first CAN bus MiniModule, the THMM 8 for temperature measurements, was launched. Continuous expansion of the CAN MiniModule family in the following years.

2003   Accreditation as a DKD-calibration laboratory, since 2012 DAkkS

2006   Branch office CSM Products Inc. founded in Chicago / USA, subsidiary in Auburn Hills, Michigan / USA since 2015.

2008   Establishment of the CSM liaison office Southern Europe in Archamps / France

2011   Development of the first EtherCAT®-based MiniModule for a test bench application. In the subsequent years, expansion of the ECAT-product line and development of the protocol converter XCP-Gateway

2013   Development of the world's first high-voltage (HV) MiniModule, the HV THMM 4, to be used for safe measurements on hybrid and electric vehicles.

Establishment of the CSM representation office in Nanjing / China

2015   Cooperation with Vector Informatik GmbH, Stuttgart

As of 2016   Increased focus on the expansion of the international distribution structures in cooperation with Vector Informatik

Product offensive with high-voltage safe and EtherCAT®-based measurement technology

CSM today

Managing Directors

Dipl. Ing. Iris Koch and
Dr.-Ing. Winfried Koch

Staff

Approx. 80 employees in Filderstadt
(Germany), 90 worldwide

Development, product management and
production located in Filderstadt

Accreditations

Certified according to DIN EN ISO 9001
Certified according to DIN EN ISO 14001
Accredited DKD calibration laboratory accord-
ing to DIN EN ISO/IEC 17025 (D-K-15214-01-00)

Service & Support

Do you have specific questions or technical suggestions for the optimal use of the CSM measurement technology? Feel free to contact us, our Service & Support is at your disposal.

Take advantage of our telephone hotline:
+49 711 – 77 964-444

Or contact us over our website: **www.csm.de** and look for the heading »Support«.

Sales contacts worldwide

CSM GmbH (Germany, Austria)

Computer-Systeme-Messtechnik
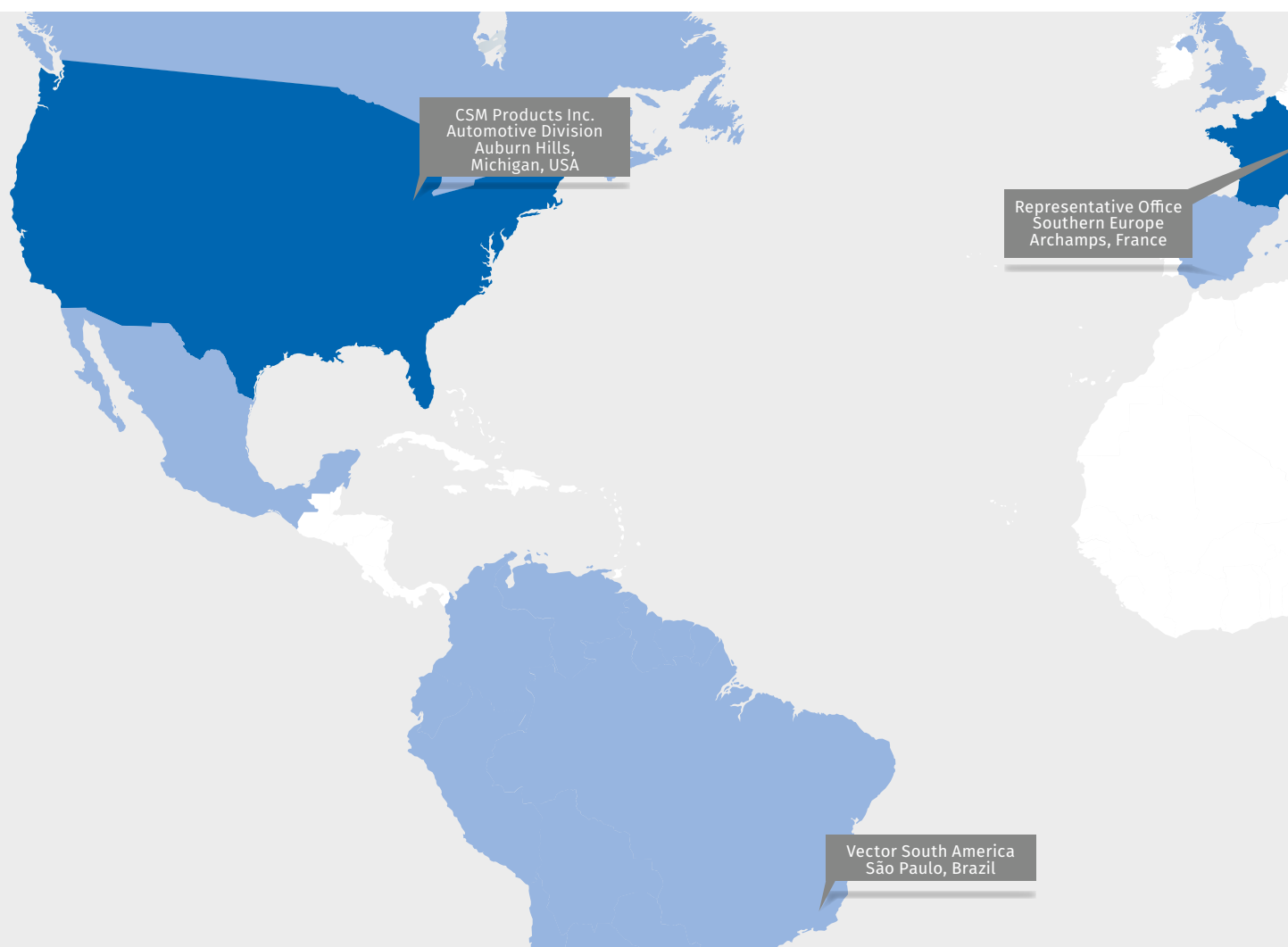Raiffeisenstraße 36
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CSM Products Inc.
Automotive Division
Auburn Hills,
Michigan, USA

Representative Office
Southern Europe
Archamps, France

Vector South America
São Paulo, Brazil

»Each CSM MiniModule is developed, manufactured and calibrated at our headquarters in Filderstadt. We can thus guarantee our customers the highest possible quality.«

Michael Schade, Head of Production

CSM Products, Inc. USA
(USA, Canada, Mexico, Brasil)

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Sales Partners

Our sales partners guarantee worldwide availability. The contact details can be found on our website on the page »Contact«.

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Turkey	Korea

Headquarters CSM GmbH
Filderstadt, Germany

Vector Asia
China, Japan,
Korea, India

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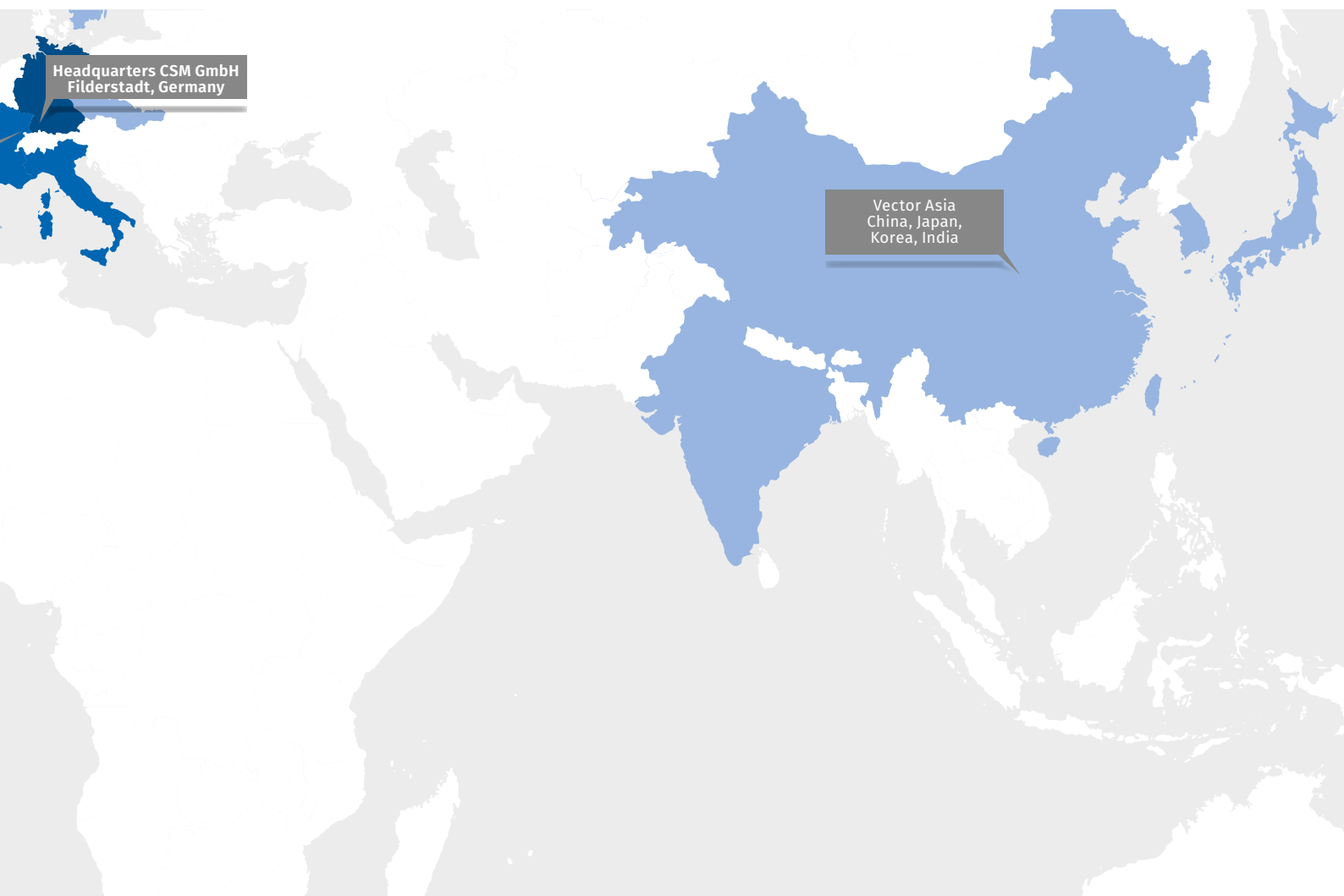
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CSM (RoW)

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