ViGEM

高速数据记录

EVERY BIT COUNTS.

CCA 9010

ViGEM 有限责任公司是提供汽车数据记录解决方案的领先专家。很多OEM 和Tier 1供应商使用我们的嵌入式硬件和软件，用于高级驾驶辅助系统和自动驾驶功能的认证和高效验证。

自2009 年以来，ViGEM 成功支持汽车行业的发展 -"从客户产品的创新、开发直至投产 (SOP)，从原型测试、验证直至最终资格的测试"。

ViGEM 的 CCA (汽车通信分析仪) 解决方案是由高速的数据记录仪、坚固耐用的可移动数据存储硬盘和高速的 copy stations 组成，端到端产品线为高端数据采集、可靠数据存储和快速读取极大量汽车数据设定了标准。

<< 创新、先进的驾驶辅助系统可以使驾驶更舒适、更全。**ViGEM 的使命是通过开发高性能测试和分析系统，实现可靠驾驶辅助系统的有效验证。** >>
(Markus Trauth, ViGEM GmbH 首席执行官)

ViGEM GmbH is one of the leading specialists for automotive data logging solutions. The embedded hardware and software products are used by OEMs and Tier 1 suppliers for the qualification and efficient validation of advanced driver assistance systems and automated driving functions.

Since 2009, ViGEM has succcessfully supported the automotive industry during the development of their innovative products up to the start of production (SOP): Prototype testing, validation, and final qualification testing.

ViGEM CCA (Car Communication Analyzer) solutions consist of high-end data loggers, robust removable data storage devices, and fast copy stations. The end-to-end product lines set standards in high-end data collection, reliable data storage, and fast ingestion of extremely high amounts of automotive data.

<< **Innovative, advanced driver assistance systems can make driving more comfortable and much safer.**
By the development of high-performance test and anlysis systems, ViGEM´s mission is to enable an efficient validation process of reliable driver assistance systems.** >>
(Markus Trauth, CEO ViGEM GmbH)

概览:

- 数据传输速率高达 25 Gbit/s
- 存储容量可达 122 TB
- 分布式记录
- 推荐用于测试车辆和有极高要求移动项目

At a glance:

- Data rates up to 25 Gbit/s
- Data storage capacities up to 122 TB
- Distributed data logging system
- Recommended for use in test vehicles and demanding mobility projects

全球的汽车制造商都在为未来的移动性做准备。为了将车联网，V2X 或自动驾驶等先进概念安全地带到道路上，首先需要记录、存储和分析海量的环境与交通数据。之后，它将以算法和人工智能的形式成为高级驾驶功能的基础。

这些从雷达、激光雷达、高分辨率摄像头以及车载以太网不断增加的记录数据，只能通过快速、简洁的存储、读取和传输过程来管理。此外，持续的成本压力，也要求高效利用测试车队。

为了克服这些困难，ViGEM 为SOP之前的高端数据记录提供了嵌入式硬件和和软件解决方案，如高性能的 CCA 9010其包括：

- CCA 9010-100/CCA 9010 -50 数据记录仪
- CCA S10 可移动数据存储硬盘
- CCA CS10-100G copy station

CCA 9010 数据记录解决方案非常适合于用测试车辆采集最大量的数据，以及用于测试环境或实验室中要求苛刻的未来移动项目，如下文框中所示。

如需更多信息或针对您的项目需求进行具体调整，请联系我们的技术专家：sales@vigem.de / info@sigent.cn

Automotive manufacturers worldwide are gearing up for future mobility. In order to bring advanced concepts such as Connected Car, V2X or Autonomous Driving safely onto the road, it is first necessary to record, store and analyze enormous amounts of environmental and traffic data. It will later form the basis of advanced driving functions in the form of algorithms and artificial intelligence (AI).

The ever-increasing volumes of data recorded from radar and lidar sensors, high-resolution cameras, and automotive Ethernet buses in vehicle networks can only be managed by fast, uncomplicated data storage, ingest and transfer processes. Furthermore, constant cost pressure demands the efficient utilization of test vehicle fleets.

Overcoming these challenges, ViGEM offers embedded hard- and software solutions for high-end data logging before SOP like the powerful solution CCA 9010 consisting of:

- CCA 9010-100 / CCA 9010-50 data logger
- CCA S10 removable data storage
- CCA CS10-100G copy station

The CCA 9010 data logging solution is ideally suited for the collection of highest amounts of data with test vehicles as well as for demanding future mobility projects in test environments or laboratories as shown in the boxes below.

For more information or specific adaptations to your project requirements, please contact our technical experts: sales@vigem.de / info@sigent.cn

数据采集
DATA COLLECTION

ADAS 和自动驾驶的验证和开发需要采集大量数据。使用 CCA 9010 数据记录仪进行分布式采集，可在 40 多个接口上可靠且同步地采集原始传感器和摄像头数据。集成软件功能如可打标签、热插拔和 gPTP 时间戳，保证了易用性。
级联多个集成 LoggerSync 协议进行同步的数据记录仪，可以实现性能的倍增。

The validation and development of ADAS and autonomous driving demands the collection of enormous amounts of data. The distributed data logging with the CCA 9010 data logger enables the reliable and synchronized recording of raw sensor and camera data at more than 40 interfaces.

Ease of use is guaranteed by integrated software features like pre-labeling and hot plugging.

Multiplication of the performance is possible by cascading several data loggers that are synchronized via the integrated LoggerSync protocol.

现场操作测试
FOT

CCA 9010 用于在 SOP 之前对车载通信网络进行有效验证：在现场操作测试（FOT）期间，CCA 设备可由驾驶员单独操作。可编程唤醒等特殊功能可以轻松启动数据记录仪。强大的可移动数据存储硬盘的数据快速交换特点，使数据能够快速传输到数据中心，这样存储硬盘就可以连续使用。通过这种方式，与其他传输方法相比，测试车辆的停机时间可以减少到最低限度，使您的测试车队节省时间和成本。

The CCA 9010 is used for the efficient validation of in-vehicle communication networks before SOP: During field operational tests (FOT) the CCA devices can be operated by the driver alone. Special features such as the programmable wake-up function allow the easy start-up of the data logger. The quick exchange of the robust removable data storage enables the fast transfer to the data center as well as the continuous reuse of the powerful modules. In this way, the downtime of test vehicles can be reduced to a minimum compared to other transfer methods: Thus, test fleets can be utilized time- and cost-efficiently.

测试台
TEST BENCH

凭借其高达 25 Gbit /s 的高记录速率，CCA 9010 数据记录仪支持您在控制单元的开发或车辆网络的参考设置。我们的跨学科专家团队在整个开发和验证过程中陪伴着我们的客户。我们经验丰富的工程服务可以实现定制配置和功能扩展，将 CCA 解决方案最佳地集成到您的车辆网络中。此外，我们还提供项目规划以及测试环境开发方面的技术支持。

With its enormous recording rates of up to 25 Gbit/s, the CCA 9010-100 data logger supports you in the development of control units or reference setups of vehicle networks.
Our interdisciplinary expert teams accompany our customers throughout the whole development and validation process. Custom configurations and extensions of the functionality can be implemented by our experienced engineering services to optimally integrate CCA solutions into your vehicle network.
Furthermore, we offer technical support in project planning as well as in the development of test environments.

数据中心
DATA CENTER

ViGEM 先进的数据处理技术和数据加密选项提供了最大程度的数据安全性。当可移动数据存储硬盘已满或者路测结束时，可以快速更换存储模块并直接将其运送到数据中心摄取站。因此，测试车辆几乎可以全天候使用，大大节省了成本和时间。记录的数据可在短时间内进行分析。

The sophisticated data handling concept and the option of data encryption provide a maximum of data security. At the end of a test drive or when the removable data storage is full, the robust data storage module can be easily exchanged and shipped to the ingest station at a data center. That allows test vehicles to be utilized almost 24/7, realizing significant cost and time savings.
The recorded data is available for analysis within a very short time.

CCA 9010 是一款高性能数据记录仪，可用于高级驾驶辅助系统 (ADAS) 和自动驾驶功能的有效验证和鉴定。它们适用于试验车辆、实验室和试验台架。

作为市场上最强大的移动数据记录仪之一，CCA 9010-100 可不间断记录汽车总线系统和以太网数据，速率高达 25 Gbit/s。

外部数据捕获模块可通过40多个接口收集传感器和汽车数据，并通过以太网将数据转发到数据记录仪，数据记录仪是这一最先进的分布式数据记录系统的中心。通过进行gPTP同步的捕获模块，接收到的传入数据会获得带有纳秒级精度的共同时间戳。通过级联多个时间同步的 CCA数据记录仪，可以成倍增加数据记录带宽。

CCA 9010 方便用户使用的嵌入式软件可实现直观的安装且舒适的使用，例如在现场操作期间。所有的 ViGEM 数据记录仪都可以通过任何 PC、平板电脑或者智能手机的网络浏览器进行配置和轻松的控制。还可以根据您的特殊要求设计定制配置。

针对具体的工程项目，中档机型 CCA 9010-50 可提供高达 10 Gbit/s 的连续数据传输速率。此记录仪特别适合于数据量较少但要求相同高质量和产品标准的开发项目。

The high-performance data loggers CCA 9010 are used for the efficient validation and qualification of advanced driver assistance systems (ADAS) as well as autonomous driving functions (AD). They are suitable for use in test vehicles, in the laboratory, and on the test bench.

As one of the most powerful mobile data loggers on the market, the **CCA 9010-100** records automotive bus systems and Ethernet at continuous data rates of up to 25 Gbit/s.

External Capture Units collect sensor and automotive data on more than 40 interfaces and forward the data via Ethernet to the data logger, the center of this state-of-the-art distributed data logging system. Incoming data receive a common timestamp with nano-second resolution by the Capture Modules, which are gPTP-synchronized. By cascading multiple synchronized CCA data loggers the recording bandwidth can be multiplied. The user-friendly embedded software of the CCA 9010 allows intuitive installations and comfortable use, e.g., during field operational tests (FOT). All ViGEM data loggers can be configured and easily controlled via web browser from any PC, tablet or smart phone. Custom configurations can be engineered according to your special requirements.

For specific engineering projects, the mid-range model **CCA 9010-50** provides continuous data rates of up to 10 Gbit/s. This logger variant is particularly suitable for development projects with less amounts of data but demanding the same high quality and product standards.

CCA 9010

正面: CCA 9010 数据记录仪和可移动存储硬盘
Front side: Data logger CCA 9010 with removable data storage

CCA 9010-100 背面: 40 多个接口，以高达 25 Gbit/s 的速度记录。
Rear side CCA 9010-100: More than 40 interfaces for data recording with up to 25 Gbit/s.

中档型号 CCA 9010-50 背面: 以高达 10 Gbit/s 速度连续记录。
Rear side of the mid-range model CCA 9010-50: Continuous data recording up to 10 Gbit/s.

记录数据速率高达 25 Gbit/s
Data rates up to 25 Gbit/s

存储容量可达 122 TB
Data storage up to 122 TB

移动数据处理
Mobile data handling

分布式记录
Distributed data logging system

嵌入式软件
Embedded software

数据加密
Data encryption

gPTP 时间戳
gPTP timestamp

可级联
Cascading possible

可移动存储硬盘
REMOVABLE DATA STORAGE

可移动数据存储设备 CCA S10xxT 是汽车数据记录解决方案的一部分。它们专为实验室和车辆现场测试而设计，非常耐用且具有技术挑战性。具有高技术标准的坚固型盒式硬盘还提供硬件加密和热插拔技术，以确保移动数据处理的最佳性能。总存储容量从 16 TB 到 122 TB 不等。存储模块可用于标准 (0° C ... +50° C) 或扩展环境温度范围 (-20° C 至 65° C)。

所有型号的硬盘都具有高达 32 Gbit/s 的高写入速度和高达 48 Gbit/s的高读取速度。坚固的金属外壳可靠地保护内部电子元件免受机械负载的影响。由于这种设计，可移动数据存储硬盘适合在长期项目和许多汽车用例中永久使用。它代表着您加密的车辆测试数据的快速和简便传输。

端到端的 CCA 9010 解决方案由数据记录仪、copy station 和可移动数据存储模块组成。所有这些设备都按照 AES-256 标准和 OPAL 2.0 进行数据加密。您的数据在整个处理过程中都得到了可靠的保护: 数据采集、存储和读取。

可移动数据存储设备的未来其他型号提供额外的功能，如双背板带宽和优化的散热设计。以便为我们的客户对未来的车辆测试的要求做好充分准备。

数据的安全性 & 可用性
DATA SECURITY & AVAILABILITY

The removable data storage devices **CCA S10xxT** are part of the data logging solution CCA 9010. They are specially designed for laboratory and vehicle field testing. Very durable and technologically challenging.

Rugged cartridges at the highest technical standards offer hardware encryption and hot plugging to ensure best performance in mobile data handling. Total storage capacities range from 16 TB to 122 TB. The storage modules are available for the standard (0° C ... +50° C) or extended ambient operating temperature range (-20° C up to 65° C).
All variants are characterized by high write speeds up to 32 Gbit/s and high read speeds up to 48 Gbit/s. The robust metal housing reliably protects the internal electronic components from mechanical loads. Due to this robust design, the removable data storage from ViGEM is suitable for permanent use in long-term projects and many automotive use cases. It stands for fast and easy transfer of your encrypted vehicle test data.

The end-to-end solution CCA 9010 is equipped with data encryption/decryption according to AES-256 standard and OPAL 2.0 from the data logger, to the removable data storage, to the copy station. Your data is reliably protected during the entire processing: Data collection, data storage, and data ingestion at highest level.

Future variants of the removable data storage devices offer additional features like double backplane bandwidth and an optimized thermal design.
Thus, our customers are also well prepared to meet future requirements in vehicle testing.

CCA S10xxT

ViGEM
122 TB-I
S10122T-I

ViGEM
64TB-I
S1064T-I

ViGEM
60TB-C
S1060T-C

ViGEM
16TB-I
S1016T-I

存储容量可达
122 TB
Data storage capacity up to 122 TB

支持数据加密
OPAL 2.0/ AES-256
Data encryption OPAL 2.0 / AES-256

温度范围可拓展
Extended temperature range available (I- and C-temp)

坚固的盒式硬盘
Robust cartridge

ViGEM 提供最高可靠性

持续的验证

得益于我们多年的经验。ViGEM 的所有产品线连续多年通过严格规则和要求的质量以及性能的测试。

可靠的供应链

与可靠的供应商建立长期的合作关系是我们产品质量稳定的重要基础。

长期的可用性

无论是首次购买，项目调整或重复购买: 即使经过多年，我们始终如一为您提供高质量的产品。

移动数据处理

由于 ViGEM 先进的移动数据处理，您可以在时间和成本上高效地利用您的测试车队。通过快速简单的数据传输，记录的数据可以在很短的时间内用于分析。

HIGHEST RELIABILITY by ViGEM

Continuous Validation

Benefit from our many years of experience. All ViGEM product lines continuously pass quality and performance tests according to strict rules and requirements.
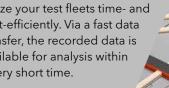
Reliable Supply Chains

Long-term relationships with reliable suppliers are an important basis for the consistant quality of our products.

Long-Term Availability

Whether initial purchase, project adaptation or repeat purchase: We deliver your selected products in consistently high quality, even over years.

Mobile Data Handling

Due to our sophisticated mobile data handling concept, you can utilize your test fleets time- and cost-efficiently. Via a fast data transfer, the recorded data is available for analysis within a very short time.

CCA CS10-100G
COPY STATION

结合CCA9010数据记录仪，copy station CCA CS10-100G 是 ViGEM 最强大、最方便的移动数据传输解决方案。

可移动数据存储的加密数据通过标准网络协议传输到 NAS、服务器或云端，传输速度高达 50 Gbit/s。

CCA CS10-100G 配备了用户友好的集成软件、标准化硬件解密、自动化功能和直观的用户界面，它们可以在数据中心和实验室环境中以非常方便、时间和成本高效的方式使用。

若您有具体项目要求，请联系我们: sales@vigem.de / info@sigent.cn

In combination with CCA 9010 data loggers the copy station **CCA CS10-100G** is the most powerful and most comfortable data ingest solution by ViGEM.

It transfers the encrypted data from the removable data storage via standard network file transfer protocols to connected Networked Attached Storage (NAS), into local data lakes or into the cloud with speeds up to 50 Gbit/s.
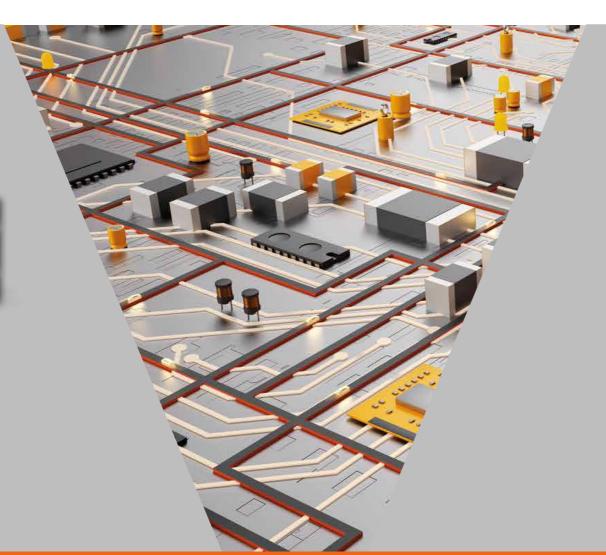
The CCA CS10-100G comes with user-friendly, integrated software, standardized hardware decryption, automation features, and intuitive user interfaces. They enable the use in data centers and laboratory environments in a highly convenient as well as time- and cost-efficient manner.

In order to discuss your specific project requirements, please contact us: sales@vigem.de / info@sigent.cn

CCA CS10-100G

Copy station CCA CS10-100G 正面
Front side: Copy station CCA CS10-100G

Copy station CCA CS10-100G 背面
Rear side: Copy station CCA CS10-100G

传输速率高达
50 Gbit/s
**Transfer rate
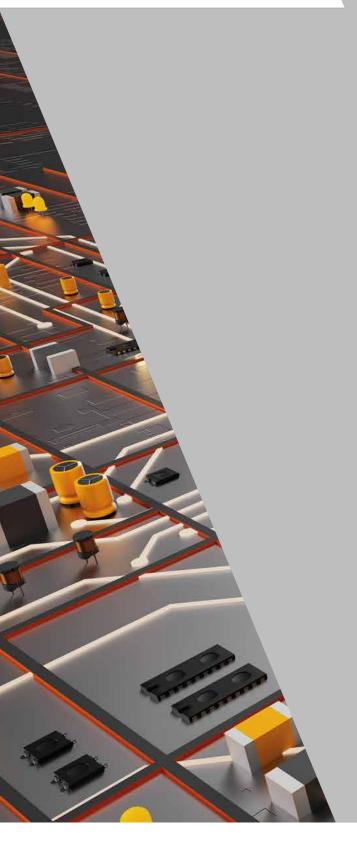up to 50 Gbit/s**

数据安全
**Data
security**

集成软件
**Integrated
software**

便于操作
**Ease
of use**

CONTACT US

ViGEM GmbH
Mr. Shaokang Yang
shaokang.yang@vigem.de

Fon: +49 (0)721.90990.500
Web: vigem.cn

Sales + Service CHINA under development

Our on-site service is currently under
development. Please visit our website
to get comprehensive technical support.

Sales Partner China
Sigent Technology (Bejing) Co., Ltd.
Beijing | China
Fon: +86 138 1002 6761
info@sigent.cn
www.sigent.cn

联系我们

中国销售与服务 在建设中

我们的现场服务目前正在建设中。
请访问我们的支持页面 获得全面的技术支持。

中国销售合作伙伴
思佳科技（北京）有限责任公司
陈时秋 先生
电话： 0086 138 1002 6761
www.sigent.cn

EVERY BIT COUNTS.

vigem.cn