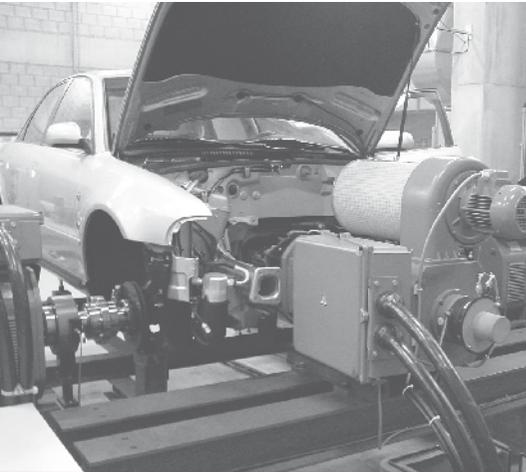




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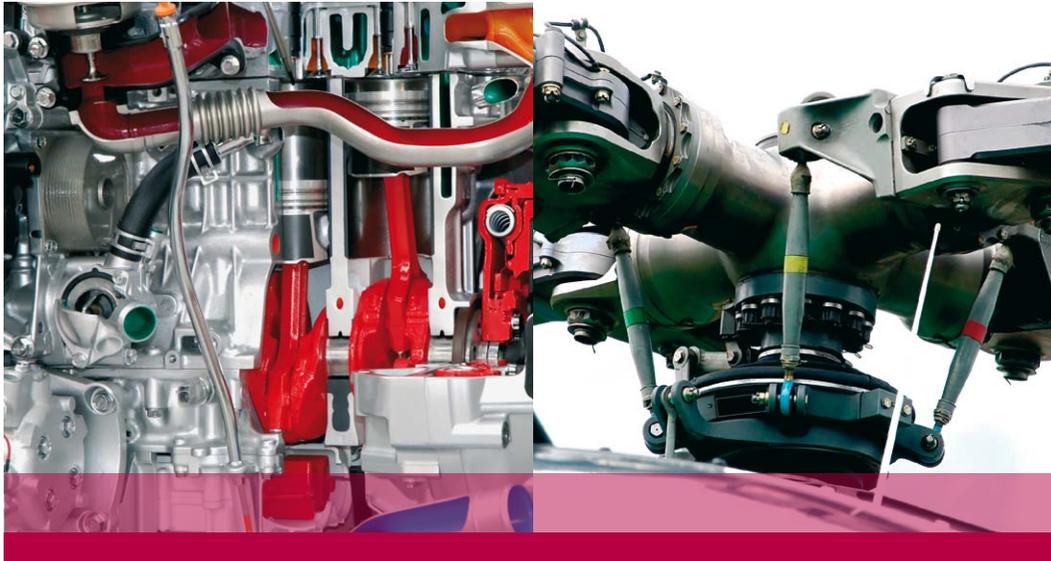
HEIM DATaRec[®] 4 series

Modular and precise data
and bus traffic acquisition system

ZODIAC DATA SYSTEMS / HEIM

AEROSAFETY & TECHNOLOGY
Telemetry & Telecommunications





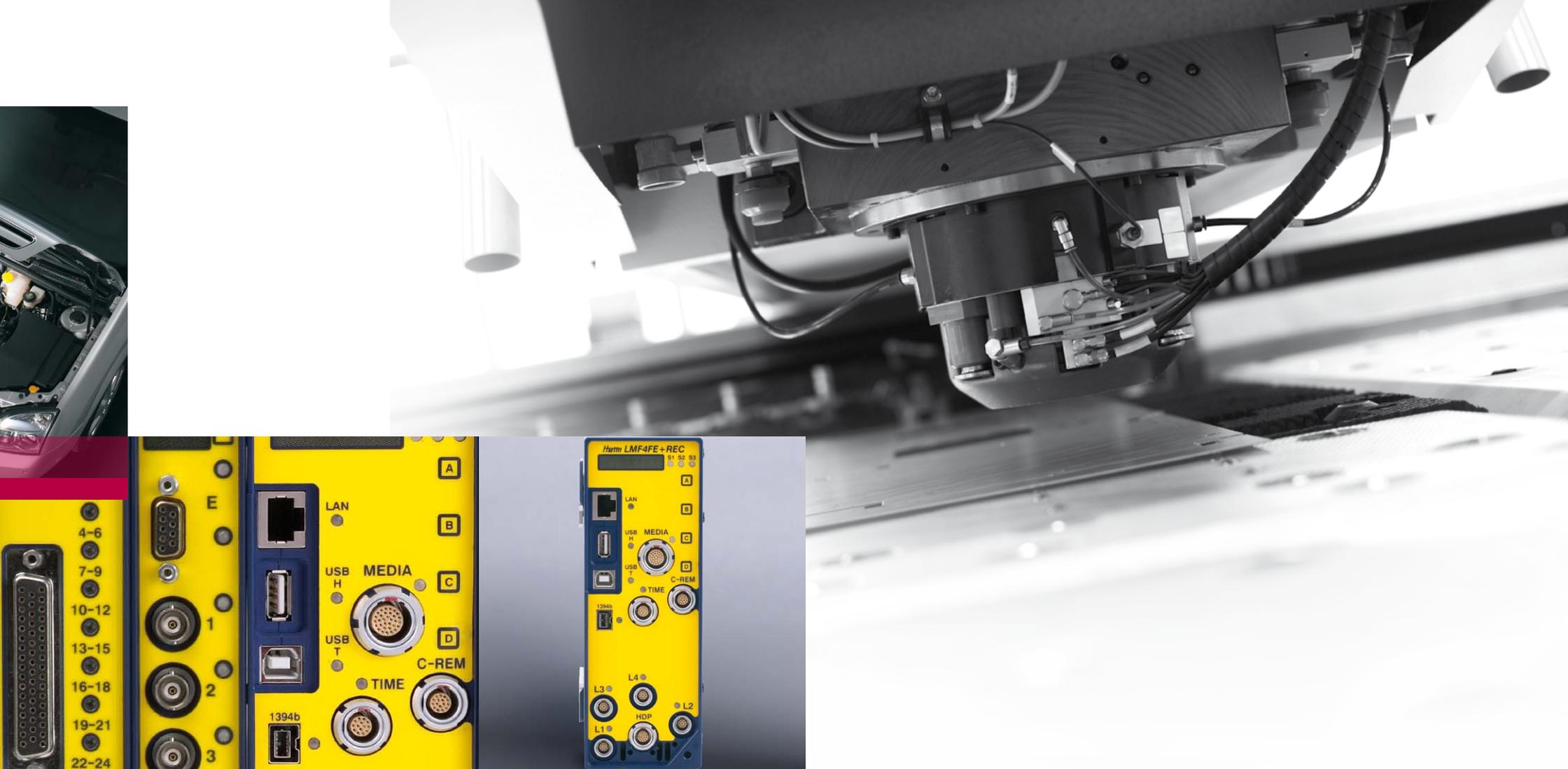
DATARec® 4 – WELCOME TO THE EVOLUTION OF DATA ACQUISITION

Technological progress demands shorter development cycles. Development depends heavily on testing, data acquisition and data analysis of prototypes.

CAE designs have to be confirmed by real world testing and evaluation. Efficient testing requires simultaneous acquisition of diverse parameters, requiring more data, while data quality cannot be compromised. The required precision, as well as the number of channels, will continue to increase.

New data acquisition / recording-systems should be flexible, expandable and re-deployable = modular, capable of handling various sensors, digital data, bus traffic, video and GPS, etc., and cost-efficient and affordable.

The challenge is to combine these requirements. The DATARec® 4 meets these requirements with well-defined strategies and corresponding tools (measurement hardware and software).



DATaRec® 4 SERIES – ALL YOU NEED FOR DATA AND BUS TRAFFIC ACQUISITION

The HEIM DATaRec® 4 series is one of the first distributed measuring systems in the field of data acquisition technology and is designed for mobile as well as for stationary applications in benign to harsh environments. In the DATaRec® 4 concept, a single signal module can be used as a small, light-weight front end. Various modules can be linked together via the HEIM link bus to build multi-channel systems with up to 768 channels. An advantage of the distributed architecture is the possibility to position the signal modules close to the signal sources and sensors. This simplifies cabling and reduces distortions or interferences of the signals acquired.

The DATaRec® 4 family provides a wide range of signal modules to meet your needs.

DATaRec® 4 SERIES – TOO MANY ADVANTAGES TO IGNORE

- Modular architecture supports an almost unlimited number of applications
- Hardware setup enables compact systems as well as distributed measuring chains
- Standard interfaces (IEEE 1394b, USB 2.0, Ethernet) to storage media, PC and analysis systems
- Signal modules with integrated power supplies and signal conditioning (microphone, charge, strain gauge, bridge, vibration, pressure, ICP®, IEPE, direct voltage, etc.)
- Signal modules for digital data streams (AES/EBU, CAN, FlexRay, video, Ethernet etc.)
- Digital system processing to safeguard quality of data
- A/D converter with 24 bit resolution, dynamic range >140 dB typical; phase error < 0,2°
- Galvanic isolation of input channels

DATARec[®] 4 APPLICATIONS



1. LOW NUMBER OF CHANNELS

A one-module system linked directly via a USB to a PC connection



2. COMPACT SYSTEM

Central measuring system with a maximum of 384 channels. Can operate without PC, via pre-programmed link module, in stand-alone, logging, modes



3. DISTRIBUTED DATA ACQUISITION SYSTEM

Distributed data acquisition system with a cable length up to 100 meters and a maximum of 384 channels

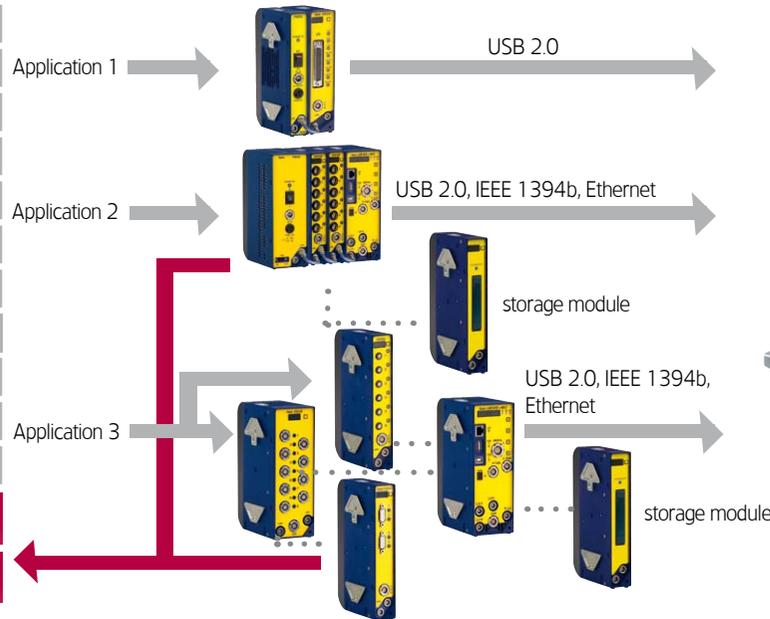


4. MULTI-CHANNEL SYSTEM

Distributed measurement system with more than 700 channels

Data streams supported

- Analog / ICP[®] / IEPE
- Charge
- Strain gauge / Bridge
- Microphone
- AES / EBU
- CAN / FlexRay Buses / Peripherals
- Temperature
- Video
- Ethernet bus traffic
- Serial busses
- RPM
- Analog output
- Source output



NEW MODULES ARE CONTINUALLY BEING DEVELOPED.



DATARec® 4 COMPONENTS



SIGNAL MODULES

The signal modules provide the interface to the signal sources. The module portfolio offers interfaces for all common transducer types, buses and digital data sources.

- AES / EBU
- CAN-bus / FlexRay
- Voltage
- ICP® / IEPE
- Strain gauge / Bridge
- RPM
- Pressure
- Vibrations
- Charge
- Microphone (polarization and ICP®)
- Video
- Ethernet
- TTL
- Others on request

LINK MODULES

The link module is the central data handling unit. It provides the interconnection of multiple signal modules to a complete system.

Computer and user-supplied storage media interfaces include:

- IEEE 1394 b
- USB 2.0
- Gbit Ethernet



STORAGE MODULES

A storage module can be integrated in the system architecture for local storage of the data in order to create a stand-alone data recording system.

Storage media can be:

- Harddisk
- Solid State



POWER MODULES

Different power modules plus battery options ensure the supply of the signal modules in different applications.

The following ranges are covered:

- 9 – 36 V DC
- 90 – 132 V AC and 180 – 264 V AC (50 – 440 Hz)



CONNECTION BETWEEN THE DATaRec® 4 MODULES

One outstanding feature of the DATaRec® 4 series is its modular and distributed concept which enables the user to expand, contract or subdivide a system according to need.

Subsystems and systems components can be flexibly positioned, including utilization close to the signal sources such as sensors.

The advantages are less signal distortion, less outside interference (RFI / EMI and ground loops), reduced cable complexity and lower system costs.

The basis of this architecture is the serial HEIM link bus interconnecting the different types of DATaRec® 4 modules. The HEIM link bus supports a range of functions such as data transfer, set up and synchronization, as well as powering the individual modules.

With the HEIM link, the modules are connected electrically to each other by only a single cable, simplifying cabling and pass-through's.

The specially shielded bus includes two communication channels for simultaneous full duplex communication (command & control during data transfer) between the modules.

The DATaRec® 4 data synchronization design and self-test guarantees extreme time precision between the individual components.

The maximum cable length between the modules is 10 meters. The maximum length of a chain of DATaRec® 4 modules is 50 meters. Optical repeaters are available to bridge even greater distances, up to 500 meters.





DATaRec® 4 RUGGEDIZED SERIES RUGGEDIZED FOR TOUGH OPERATING CONDITIONS

Continuous technological progress and the experienced success of the HEIM DATaRec® 4 blue modules in the automotive industry, in labs and also in industrial applications has led users to also want to utilize the system in tougher operating environments such as on submarines, track vehicles, airplanes, helicopters and off-highway machines as well as nearer to the device under test such as engines.

In order to meet these requirements, we developed the HEIM DATaRec® 4 R modules. Standard and ruggedized modules can be inermixed in distributed systems. To form the ruggedized modules, the electronic components of the blue modules are integrated into a mechanically and thermally optimized housing. The housing and mounting design results in higher vibration and shock survivability of the system and an improved heat management design provides a wider temperature range.

The outstanding performance and precision of the HEIM DATaRec® 4 blue series combined with rugged construction and the ability to operate faultlessly under harsh environmental conditions makes the ruggedized family unique.





DATaRec® 4 SERIES AT A GLANCE

Description	High precision data acquisition and storage system with modular storage media cartridges
No. of channels	1 - 768
No. of signal modules	8 in one subsystem. A multi channel system consists of up to 8 subsystems
System data rate	600 Mbit/s. Upgradeable to 1.7 Gbit/s
Data format	32 bit
Dynamic range	>140 dB typical
Analog modules	Analog voltage, microphone, charge, strain, ICP®, IEPE, RPM, temperature. DC-30 MHz
Digital modules	AES/EBU, CAN, PCM
Data Interfaces	IEEE 1394b (FireWire®), USB 2.0, Gbit Ethernet (10/100/1000 Base T)
Video modules	4 channel Rec/Rep, plus voice, PAL, SECAM, NTSC, input composite and S-Video





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