



HEIM DATaRec® 4 Series

**ZODIAC DATA SYSTEMS / HEIM**

AEROSAFETY & TECHNOLOGY  
Telemetry & Telecommunications





## DATaRec® 4 SERIES – ALL YOU NEED FOR DATA ACQUISITION

The HEIM DATaRec® 4 series is one of the first distributed measuring systems in the field of data acquisition technology and designed for mobile as well as for stationary applications. Due to this concept, a single signal module can be used as small, light-weighted front end. Various modules can be linked together via the HEIM link bus to a multi-channel system with up to 768 channels. An advantage of the distributed architecture is the possibility to position the signal modules close to the signal source. This simplifies cabling and avoids any 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 – SO MANY ADVANTAGES YOU CAN'T IGNORE!

- Modular architecture enables an almost unlimited number of applications
- Hardware setup enables compact systems as well as distributed measuring chains
- Standard interfaces (IEEE1394b, USB 2.0, Ethernet) for analysis systems
- Signal modules with integrated power supplies and signal conditioning (microphone, charge, strain gauge, vibration, pressure, ICP®, etc.)
- Signal modules for digital streams of data AES/EBU, CAN, FlexRay, video, Ethernet etc.
- Digital system processing to safeguard quality of data
- A/D converter with 24 bit resolution dynamic range > 102 dB; phase error < 0,2°
- Galvanic isolation of input channel

# DATARec® 4 APPLICATIONS



## LOW NUMBER OF CHANNELS

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



## COMPACT SYSTEM

Central measuring system with a maximum of 192 channels



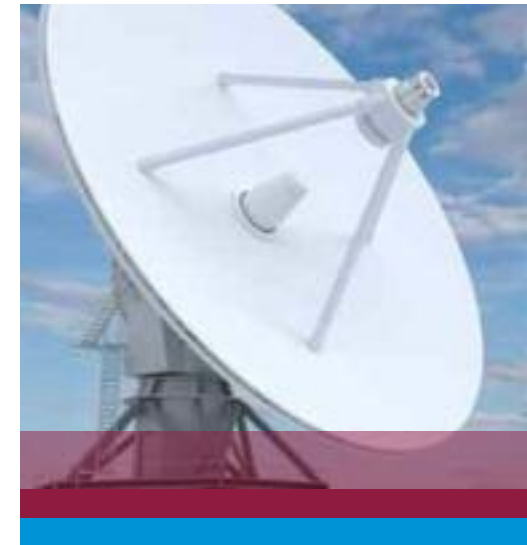
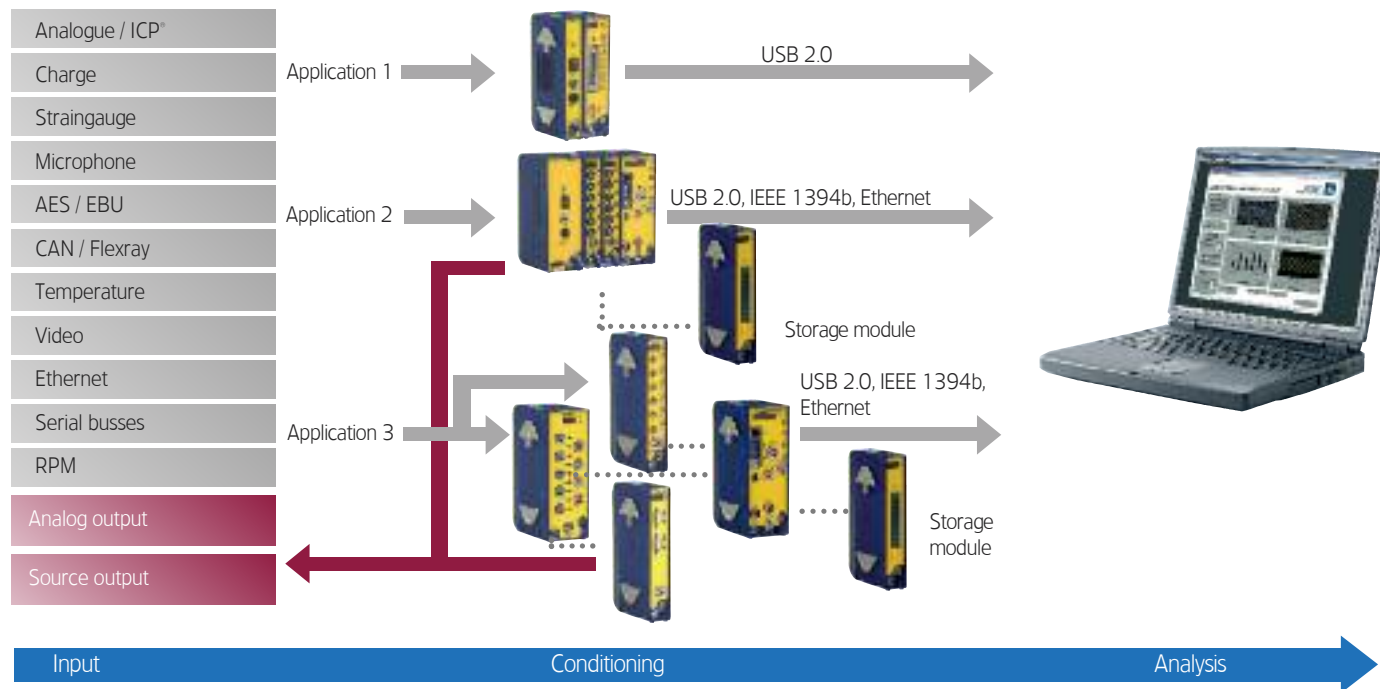
## DISTRIBUTED DATA ACQUISITION SYSTEM

Distributed data acquisition system with a cable length up to 100 meters and a maximum of 192 channels



## MULTI-CHANNEL SYSTEM

Distributed measurement system with more than 700 channels



# 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®
- Strain gauge
- 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 Interfaces are:

- 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 ensure the supply of the signal modules in different applications. The following ranges are covered:

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



## CONNECTION BETWEEN THE DATARec® 4 MODULES

An outstanding feature of the DATARec® 4 series is its modular and distributed concept which enables the user to expand the system towards his needs.

In addition, the flexible positioning of the systems allows an utilization close to the signal source.

Less distortion or outside interferences of the signals and also the reduction of the cable complexity are the advantages.

The basis of this architecture is the serial HEIM link bus positioned between the different types of DATARec® 4 modules. Besides supporting a range of functions such as data transfer, set up and synchronizing, the HEIM link bus also supports the voltage supply of the individual signal modules.

In this way the modules are connected electrically to each other by only one single cable. Through this specially shielded bus there are two communication channels available for simultaneous full duplex communication between the modules.

In order to guarantee extreme time precision between the individual components, an own synchronization cycle was developed.

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 of up to 500 meters.





## DATaRec<sup>®</sup> 4 RUGGEDIZED SERIES

### RUGGEDIZED FOR TOUGH OPERATING CONDITIONS

Continuous technological progress and the experienced success of the HEIM DATaRec<sup>®</sup> 4 blue modules in the automotive industry, in labs and also in industrial applications has led to the fact that users also want to utilize these modules in tougher operating environment such as submarines, track vehicles, airplanes, helicopters and construction machines.

In order to meet these requirements, we developed the HEIM DATaRec<sup>®</sup> 4 R modules. With the aim of providing a wider temperature range for the modules an improved heat management was designed.

The electronic components of the blue modules are integrated in a housing which is mechanically optimized. Special fixings allow for higher vibration and shock readings of the system. The outstanding performance and precision of the HEIM DATaRec<sup>®</sup> 4 blue series combined with a rugged construction and the ability to operate precise under harsh environmental conditions makes the rugged 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 - 1536
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	102 dB typical
Analog modules	Analog voltage, microphone, charge, strain, ICP®, RPM, temperature.
Digital modules	AES/EBU, CAN, PCM
Data Interfaces	IEEE 1394b (FireWire®), USB 2.0, Gbit Ethernet (10/100/1000 Base T)





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