



**General**

The HEIM DATaRec 4 SGU9 Module is a 9 channel strain gauge data acquisition system.

The module can operate as a standalone front-end (PC connection via USB 2.0) or linked together with additional HEIM DATaRec 4 Modules to a multi channel system via HeimLink.

Each input channel is galvanical isolated completely independent and consists of amplifier, 24 bit A/D converter and anti aliasing filter. A special module feature is that one of the input channels can be set to RPM mode.

The HEIM DATaRec 4 represents leading edge technology.

**9 channel strain gauge module**

Number of channels	9
Sampling frequency (Fs)	up to 25 kHz, settable in steps of 10 Hz. Each module can work with a dedicated sampling frequency, which is a binary divider of the overall system FS
Bandwidth	max. 10 KHz (settable)
Sampling ratio	2.5; no mirroring effect
Dynamic range (SFDR)	>90 dB at 2 V <sub>peak</sub> range
Analogue to digital Converter	24 bit
Data resolution	32 bit or 16 bit
THD	<-90 dB at 2 V <sub>peak</sub> range
Phase accuracy	<0.2°
DC accuracy	1mV range TBD ±0.1 % or ±1 mV
Input impedance	5 MΩ
Signal level	1 mV <sub>peak</sub> to 10 V <sub>peak</sub> settable in steps 10 mV, 20 mV, 100 mV, 200 mV, 500 mV, 1 V, 2 V, 5 V, 10 V
Coupling	DC
Bridge type	full, half
Bridge resistor	120 – 1 KΩ
Bridge supply voltage	0.5 V to 10 V in steps of 100 mV
Auto offset capability	14 bit D/A converter

Connector	9 * LEMO (7pol 1B) or 3 * D-Sub 44 pin
Dimensions	70.1 x 184 x 124.5mm (w x h x d) including fixing system
Weight	TBD
Cooling	conduction cooled
Power consumption	25 W typical
Power input range	17 - 28 V DC
Input DC power	low power detection
Communication	HeimLink, USB 2.0 and RS232

**Functions**

Integrated calibration unit	3 ppm reference calibration
Galvanic isolation	yes per channel
Max. isolation voltages	power input (48 V) digital / analogue part (48 V) voltage safety ± 35 V
Input channel	one channel is useable as RPM input
RPM channel	16 x Fs (max. 3.2 MHz) 16 bit mode
RPM sampling frequency	32 x Fs (max. 6.4 MHz) 32 bit mode threshold level 0 – 100% of the selected amplifier step

**Environmental specifications**

Vibration	5 g
Shock	10 g
Temperature operational	IEC 60068-2-14-Nb
Standalone module	-20 °C - 70 °C -30 °C - 70 °C <sup>1)</sup>
Link chain system	-10 °C - 55 °C -20 °C - 55 °C <sup>1)</sup>
Storage	-40 °C - 85 °C
Humidity	0 - 93% relative, non-condensing
EMI	DIN EN61000 / DIN EN61326 <sup>2)</sup>

# Technical Specification HEIM DATaRec<sup>®</sup> 4 SGU9

## Notes

Performance varies depending on the installation environment. The shown values were measured using an appropriately designed test system including the HEIM DATaRec 4 power supplies under nominal conditions of temperature, voltage, etc..

Performance is significantly influenced by storage medium type, host computer performance and load, used acquisition software, signal module configuration, power supplies and cabling.

- 1) special start-up procedure required
- 2) for operation in industrial environment (according to DIN EN 61326) earthing of the module and / or shielded cable is necessary to prevent influences by external electromagnetic distortions.

## Applications



Miniature system  
Single module system with direct link to the PC via USB 2.0



Compact system  
Centralized acquisition system with up to 768 channels



GSS base system, up to six internal Signal Modules

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## Internal Note

- 1) Bandbreite kann im stand alone Betrieb bis 12 KHZ
- 2) (TBD)



Distributed data acquisition system  
Remotely located modules (up to 768 channels)



Distributed multi channel system  
Remotely located groups of modules (up to 768 channels)



Decentralized system Base system, module extender and external storage

