

**ZODIAC DATA SYSTEMS GMBH  
HS310-0140**

**Technical Specification  
HEIM DATaRec® 4 SGU9**



**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 galvanically isolated completely independent and consists of amplifier, 24 bit A/D converter and anti aliasing filter. 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 (settable)	0 – 78.4 Hz up to 0 - 10 KHz
Sampling ratio	2.5; no mirroring effect
Analogue to digital Converter	24 bit
Common mode rejection ratio	> 80 dB
Data resolution	32 bit or 16 bit
Digital filter	> 100 taps > 32 bit
Phase accuracy	< 0.2°
Coupling	DC
DC-Accuracy ( typical )	100 mv 0.05 % 2 V 0.01%
Bridge type	full, half
Bridge resistor	120 – 10 KΩ
Bridge supply voltage	0 V to 10 V in steps of 10 mV
Bridge supply current	< 60 mA
Short circuit & overload Detection	>61 mA

Auto offset capability	2x 14 bit D/A converter
5 Vp until 100 mVp	max ± 5 V
50 mVp until 1 mVp	max ± 500 mV
Max. differential input Voltage	10 V
Max. permissible common Mode voltage	10 V
Min permissible common Voltage	1 V
Differential input resistance	20 MΩ
Connector	9 * LEMO (7pol 1B) or
Dimensions	70.1 x 184 x 124.5 mm (w x h x d) including fixing system
Weight	1.48 kg typical
Cooling	digital controlled fan
Power consumption	typical 19 W without bridge supply typical 22 W with bridge supply max 40 W with bridge supply
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	channel to channel
Max. isolation voltages	power input (48 V) digital / analogue part (48 V) channel to channel
Input channel	voltage safety ± 35 V
Error detection	low power, fan jam, bridge overload, channel overflow, calibration, autozero

**Environmental specifications**

Vibration	5 g
Shock	10 g
Temperature operational	IEC 60068-2-14-Nb

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

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 EN61000-6-4 / DIN EN61326-1 <sup>2)</sup>

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.

## Notes

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

## Applications



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



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



**Compact system**  
Centralized acquisition system with up to 768 channels



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

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