



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[®] 4 SGU9

Standalone module	-20 °C - 70 °C -30 °C - 70 °C ¹⁾
Link chain system	-10 °C - 55 °C -20 °C - 55 °C ¹⁾
Storage	-40 °C - 85 °C
Humidity	0 - 93% relative, non-condensing
EMI	DIN EN61000-6-4 / DIN EN61326-1 ²⁾

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[®] 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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