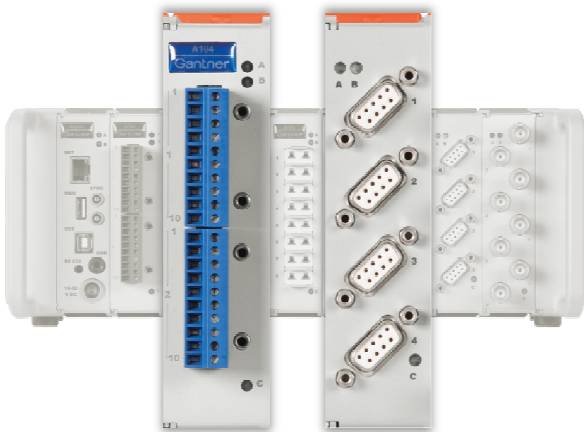




Q.brixx A107

Universal Measurement Module



The Q.brixx product line is designed for portable measurements with a high level of flexibility, reliability and accuracy. The range of applications starts from small stand-alone solutions up to networked multi-channel applications in the field of mobile and stationary performance testing and structural monitoring.

The wide range of available modules and the flexibility of the system configuration allows an optimized solution for each single task. Up to 16 modules in one system plus a Controller Unit provide a powerful package with PAC functionality, logging possibilities and an Ethernet TCP/IP interface.

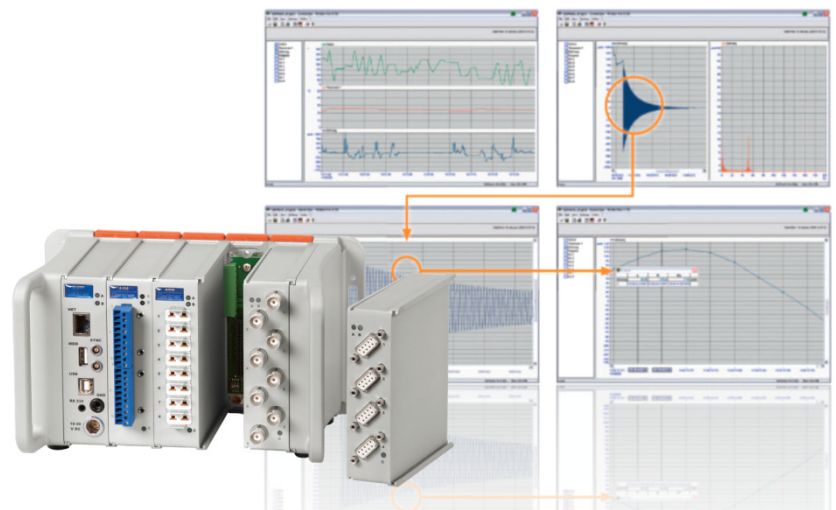
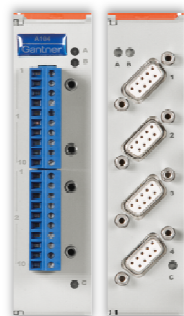
Conclusion: Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for mobile application.

Most important features of the system:

- **High density and flexibility**
up to 16 modules in one system in any constellation, flexible plug selection
- **Test Controller inclusive**
Ethernet TCP/IP for configuration and data transfer, 16 MByte data memory, expandable by USB device, logging features, PAC functionality, IRIG synchronization
- **Robust and reliable**
stable and compact aluminum housing, easy to carry
electromagnetic compatibility according EN 61000-4 and EN 55011
Temperature range -20 up to +60°C
power supply 10 up to 30 VDC

Most important features of the Module A107:

- **4 universal analog input channels**
voltage, current, resistance, potentiometer, Pt100, Pt1000, thermocouples, measuring bridges
- **Fast high accuracy digitalization**
24 bit ADC, 20 kHz sample rate per channel
- **Signal conditioning**
16 virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **Galvanic isolation**
channel to channel to power supply and to interface, V_{iso} 500 VDC

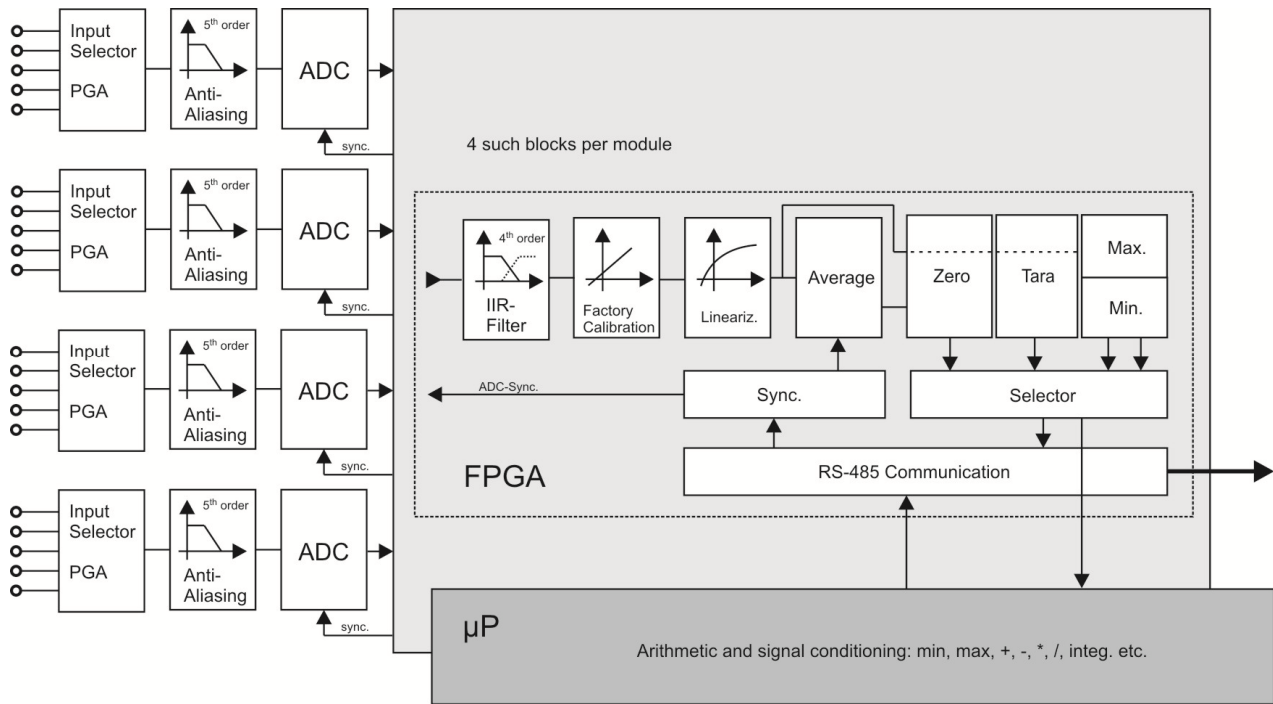




Q.brixx A107

Universal Measurement Module

Block Diagram



Analog Inputs			
Number	4		
Accuracy	0.01 % typical		
	0.02 % in controlled environment ¹		
	0.05 % in industrial area ²		
Linearity error	0.01 % of the final value typical		
Repeatability	0.003 % typical (within 24 h)		
Isolation voltage	500 VDC channel to channel to power supply to interface ³		
Measurement Voltage	Range	max. Deviation	Resolution
	±10 V	±2 mV	1.2 µV
	±1 V	±0.2 mV	120 nV
	±100 mV	±20 µV	12 nV
Input resistance	>100 MΩ		
Long term drift	<20 µV / 24 h; <200 µV / 8000 h		range ±1 V
Temperature influence	on zero	on sensitivity	
	<50 µV / 10 K	<0.01 % / 10 K	
Signal-noise-ratio	> 90 dB at 1 kHz	>120 dB at 1 Hz	

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1000 VDC, permanent up to 250 VDC



Q.brixx A107

Universal Measurement Module

Measurement Current	Range	max. Deviation	Resolution
(internal shunt 50 Ω)	±25 mA	±5 μA	3.0 nA
Long term drift	<0.5 μA / 24 h; <5 μA / 8000 h		
Temperature influence	on zero	on sensitivity	
	<1 μA / 10 K	<0.03 % / 10 K	
Measurement Resistance / RTD	Range	max. Deviation	Resolution
Resistance, 2-wire	100 kΩ	±100 Ω	12 mΩ
Resistance, 2- and 4-wire	4 kΩ	±1 Ω	0.5 mΩ
Resistance, 2- and 4-wire	400 Ω	±0.1 Ω	48 μΩ
Pt100, 2- and 4-wire	-200 up to +850 °C	±0.25 °C	0.2 m °C
Pt1000, 2- and 4-wire	-200 up to +850 °C	±1 °C	0.2 m °C
Long term drift	<10 m Ω / 24h; <100 m Ω / 8000 h		
Temperature influence	on zero (range 400 Ω)	on sensitivity	
	<10 mΩ / 10 K ≙ 0.05 °C / 10 K	0.03 % / 10 K	
Measurement Potentiometer	Relative measurement		
Permitted potentiometer resistance	1 kΩ to 10 kΩ		
Long term drift	<0.02 % / 24 h, <0.2 % / 8000 h		
Temperature influence	on zero (range 1)	on sensitivity	
	<0.0001 / 10 K	<0.03 % / 10 K	
Measurement Bridge			
Accuracy class	0.05		
Bridge Type	full bridge, 4-wire connection, half and quarter bridge with completion terminal		
Sensor resistance	>100 Ω		
Supply	2.5 V nominal		
Measurement range	±2.5 mV/V	±50 mV/V	±500 mV/V
Temperature influence	on zero (range 2.5 mV/V)	on sensitivity	
	<0.2 μV/V / 10 K	<0.05 % / 10 K	
Long term drift	<0.12 μV/V / 24h; <1.25 μV/V / 8000 h		
Measurement Thermocouple	Whole range	-100°C...upper limit	
Type B	better than ±5 °C	better than ±2.5 °C	
Type E, J, K, L, T, U	better than ±1 °C	better than ±0.5 °C	
Type N	better than ±2 °C	better than ±1 °C	
Type R, S	better than ±3 °C	better than ±1.5 °C	
Input resistance	100 MΩ		
Long term drift	<0.02 °C / 24 h; 0.2 °C / 8000 h		
Temperature influence	on zero	on sensitivity	
	<0.2 °C / 10 K	<0.025 % / 10 K	
Uncertainty cold junction compens.	<0.3 °C		



Q.brixx A107

Universal Measurement Module

Analog/Digital-Conversion	
Resolution	24 bit
Sample rate	20 kHz, (measurement thermocouple 10 Hz)
Conversion method	Sigma-Delta (group delay time 600 µs)
Anti-aliasing filter	5 kHz, 3 rd order
Digital filter	IIR, low pass, high pass, band pass, 4 th order, 1 Hz up to 1 kHz in steps 1, 2, 5
Averaging	configurable or automated according the selected data rate
Power Supply	
Power supply	10 up to 30 VDC, overvoltage and overload protection
Power consumption	approx. 2.5 W
Influence of the voltage	<0.001 %/V
Environmental	
Operating temperature	-20 °C up to +60 °C
Storage temperature	-40 °C up to +85 °C
Relative humidity	5 % up to 95 % at 50 °C, non condensing

Warm Up Time

All declarations are valid after a warm up time of 45 minutes.

Valid from March 2012. Specification subject to change without notice
DB_Q.brixx_A107_E_21.docx