



## Q.brixx A104

## Multi Channel Module for Thermocouples and Voltages



### 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

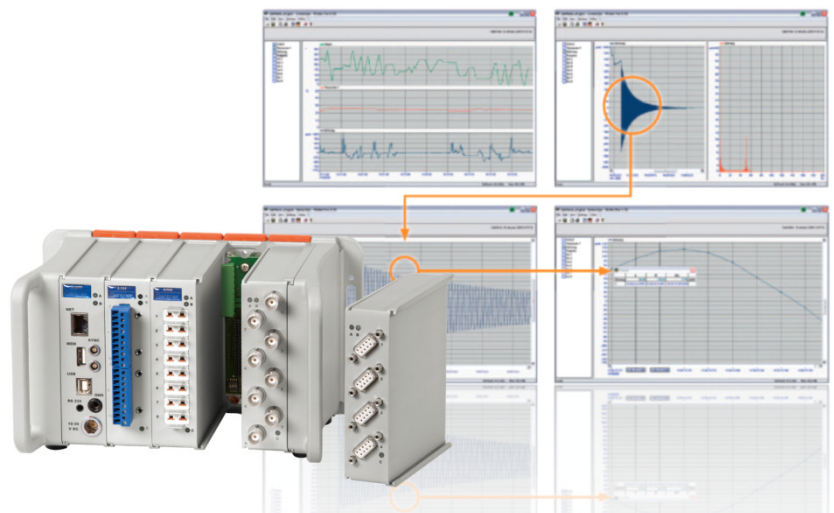
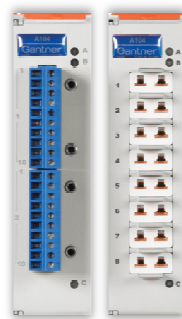
The Q.brixx product line is designed for portable measurements with a high level of flexibility, reliability and accuracy. The range of applications starts from small stand-alone solutions up to networked multi-channel applications in the field of mobile and stationary performance testing and structural 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 module A104:

- **8 galvanic isolated input channels**  
thermocouples and voltages in the range of  $\pm 80$  mV  
Isolation voltage 100 VDC
- **Cold junction compensation**  
good thermal coupling by means of cold junction compensation
- **Dynamic linearization**  
optimized positioning of the interpolation points within the selected range, type B, E, J, K, L N, R, S, T, U
- **High accuracy digitalization**  
24 bit ADC, 100 Hz sample rate per channel, sum sample rate 800 Hz
- **Signal conditioning**  
digital filter, average, scaling, min/max storage, arithmetic, alarm
- **Galvanic isolation**  
channels, power supply and interface,  $V_{iso}$  500 VDC

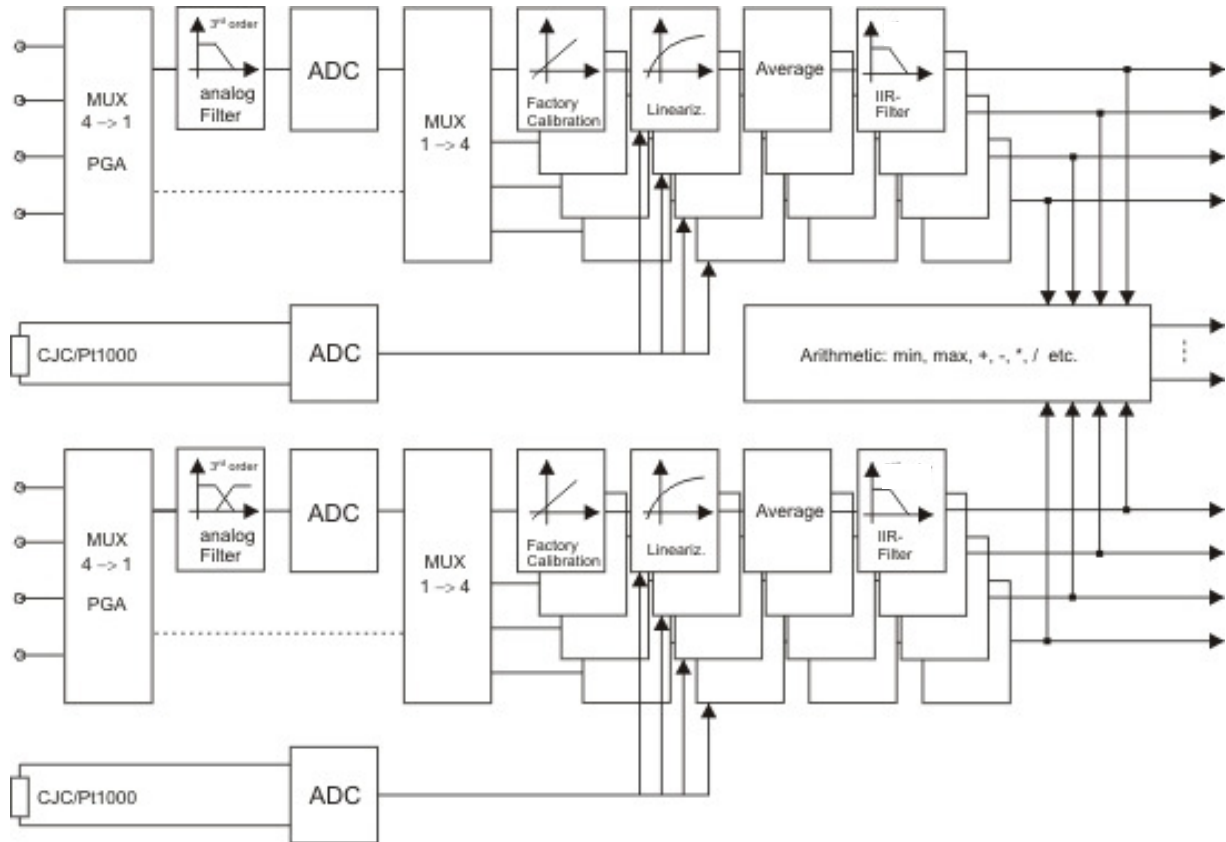




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## Block Diagram



Analog Inputs			
Number	8		
Accuracy	0.01 % typical		
	0.025 % in controlled environment <sup>1</sup>		
	0.05 % in industrial area <sup>2</sup>		
Linearity error	0.01 % of the final value typical		
Repeatability	0.003 % typical (within 24 h)		
Input resistance	>10 MΩ		
Isolation voltage	100 V permanent channel to channel		
	500 VDC channels to power supply to interface <sup>3</sup>		
Measurement Voltage			
	Range	max. Deviation	Resolution
	±80 mV	±10 μV	320 nV
Long term drift	<1 μV / 24 h; <10 μV / 8000 h		
Temperature influence	on zero		on sensitivity
	<1 μV / 10 K		<0.025 % / 10 K
Signal-noise-ratio	100 dB at 100 Hz		

<sup>1</sup> according EN 61326: 2006, appendix B

<sup>2</sup> according EN 61326: 2006, appendix A

<sup>3</sup> noise pulses up to 1000 V, permanent up to 250 VDC



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Measurement Thermocouple	Type	whole range incl. cold junction compens.
	Type B	better than $\pm 2.5^{\circ}\text{C}$ <sup>1)</sup>
	Type E, J, K, L, T, U	better than $\pm 0.5^{\circ}\text{C}$ <sup>1)</sup>
	Type N	better than $\pm 1^{\circ}\text{C}$ <sup>1)</sup>
	Type R, S	better than $\pm 1.5^{\circ}\text{C}$ <sup>1)</sup>
Long term drift	<0.05 °C / 24 h; <0.5 °C / 8000 h	
Temperature influence (Type K)	on zero	on sensitivity
	<0.02 °C / 10 K	<0.025 % / 10 K
Uncertainty cold junction compensation	<0.3 °C	
<b>Analog/Digital-Conversion</b>		
Resolution	24 bit	
Sample rate	100 Hz at 8 channels, 1000 Hz at 1 active channel, 8 Hz each channel using 50/60 Hz filter	
Conversion method	Sigma-Delta	
Digital filter	variable digital low pass filter 1 <sup>st</sup> order	
Averaging	sliding 10 x 10 ms for optimization of the precision (always active)	
	in addition optional filter for mains rejection 50 Hz/60 Hz, measuring rate is 8 Hz	
<b>Power Supply</b>		
Power supply	10 up to 30 VDC, overvoltage and overload protection	
Power consumption	approx. 2 W	
Influence of the voltage	<0.001 %/V	
<b>Environmental</b>		
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	

<sup>1)</sup> with activated mains rejection 50 Hz resp. 60 Hz.



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### 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  
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