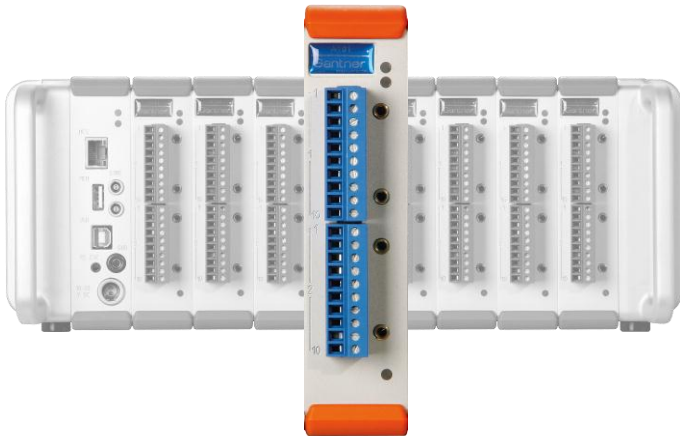


Q.brixx A104

Multi Channel Module for Thermocouples and Voltages



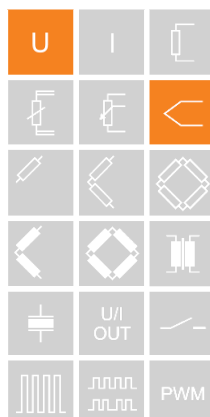
The Q.brixx series takes the performance of the Q.bloxx modules and delivers them in an integrated, rugged, scalable, and portable form factor. More than a dozen I/O modules types are available allowing you to 'mix and match' measurement features with your application requirements. Each Q.brixx module is individually housed in a rugged aluminum housing that handles data acquisition (up to 100 kHz per channel), channel-to-channel isolation (up to 1200 VDC), sensor conditioning, filtering, linearization, and conversion to engineering units – all at the I/O measurement level. The integrated Q.gate test controller handles the data synchronization, buffering, time stamping, and communication to the automation system or PC over Ethernet (TCP, UDP, FTP Modbus, etc.). The overall result is a portable measurement system that's up to the test.

Key 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

Key Features of the Module A104:

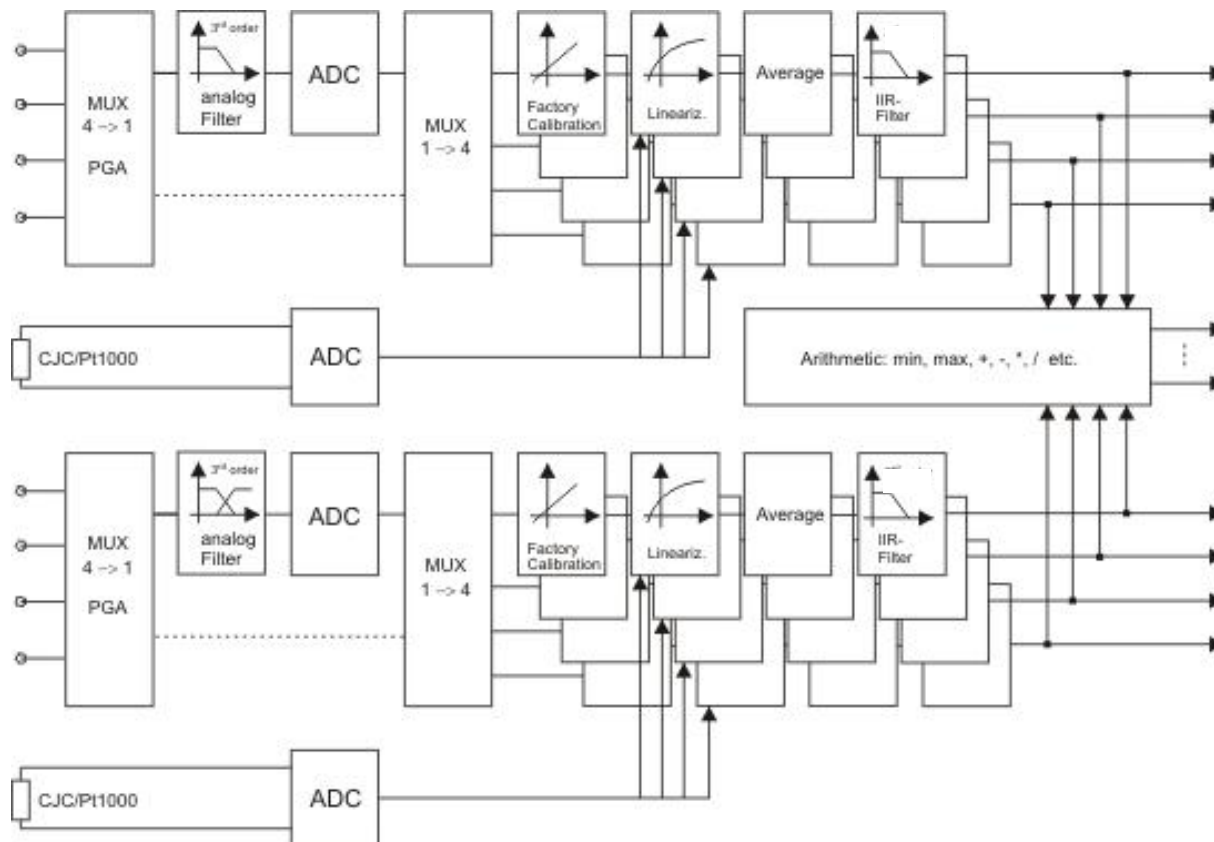
- **8 galvanic isolated input channels**
thermocouples and voltages in the range of ± 80 mV
Isolation voltage 100 VDC
- **Cold junction compensation**
TC measurements possible in differential mode or with the addition of a cold junction compensation connector
- **Dynamic linearization**
optimized positioning 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



Q.brixx A104

Multi Channel Module for Thermocouples and Voltages

Block Diagram



Analog Inputs			
Number	8		
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)		
Input resistance	>10 MΩ		
Isolation voltage	100 V permanent channel to channel		
	500 VDC channels to power supply to interface ³		
Measurement Voltage	Range	max. Deviation	Resolution
	±80 mV	±10 μV	320 nV
Long term drift	<1 μV / 24 h; <2.5 μV / 8000 h		
Temperature influence	on zero		on sensitivity
	<1 μV / 10 K		<0.005 % / 10 K
Signal-noise-ratio	100 dB at 100 Hz		

¹ according EN 61326: 1997, appendix B

² according EN 61326: 1997, appendix A

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

Q.brixx A104

Multi Channel Module for Thermocouples and Voltages

Measurement Thermocouple	Type	whole range incl. cold junction compens.
	Type B	better than $\pm 2.5^{\circ}\text{C}$ ⁾
	Type E, J, K, L, T, U	better than $\pm 0.5^{\circ}\text{C}$ ⁾
	Type N	better than $\pm 1^{\circ}\text{C}$ ⁾
	Type R, S	better than $\pm 1.5^{\circ}\text{C}$ ⁾
Long term drift	<0.025°C / 24 h; <0.15°C / 8000 h	
Temperature influence (Type K)	on zero	on sensitivity
	<0.025°C / 10 K	<0.005 % / 10 K
Uncertainty cold junction compensation	<0.3°C	
Analog/Digital-Conversion		
Resolution	24 bit	
Sample rate	100 Hz at 8 channels, 400 Hz at 2 active channels, 10 Hz each channel using 50/60 Hz filter	
Conversion method	Sigma-Delta	
Anti-aliasing filter	low pass 3 rd order per channel (-3 dB at 20 Hz)	
Digital filter	variable digital low pass filter 1 st 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 10 Hz	
Power Supply		
Power supply	10 up to 30 VDC, overvoltage and overload protection	
Power consumption	approx. 2 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	

⁾ with activated mains rejection 50 Hz resp. 60 Hz.

Warm Up Time

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

Specification subject to change without notice

gantner-q.brixx-a104.pdf (Version 0912)