

Q.raxx A104

Multi Channel Plug-in Module for Thermocouples and Voltages



The Q.raxx product is based on the standardized 19" technology and is designed for 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 stationary testing and assembly.

The wide range of available plug-in modules and the flexibility of the system configuration allows an optimized solution for each single task. Up to 13 plug-in modules in one system plus a Controller Unit provide a powerful package with PAC functionality, logging possibilities and an Ethernet TCP/IP interface.

Conclusion:

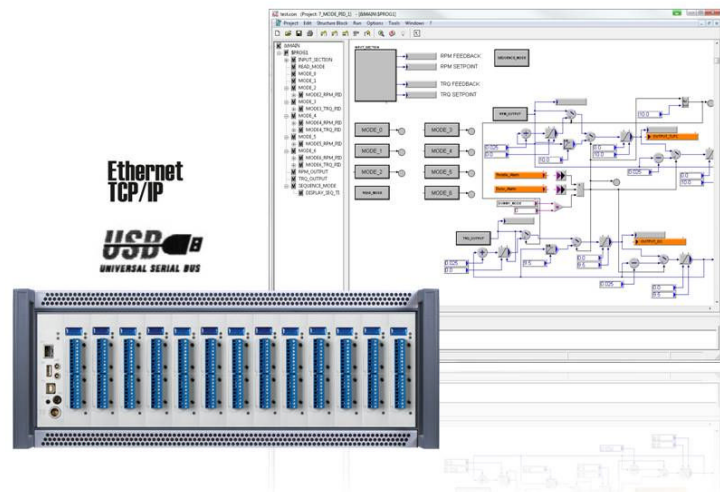
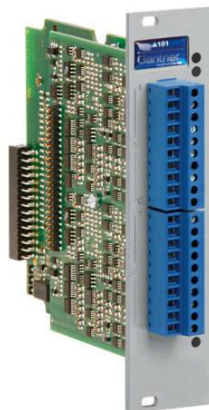
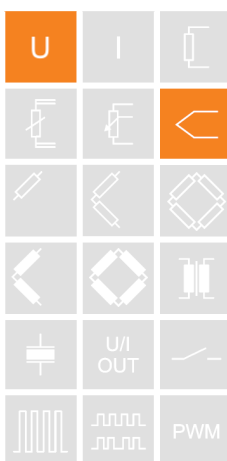
Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for all kind of test applications.

Most important features of the system:

- **High density and flexibility**
up to 16 plug-in 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 plug-in A104:

- **8 galvanic isolated input channels**
thermocouples and voltages in the range of ± 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

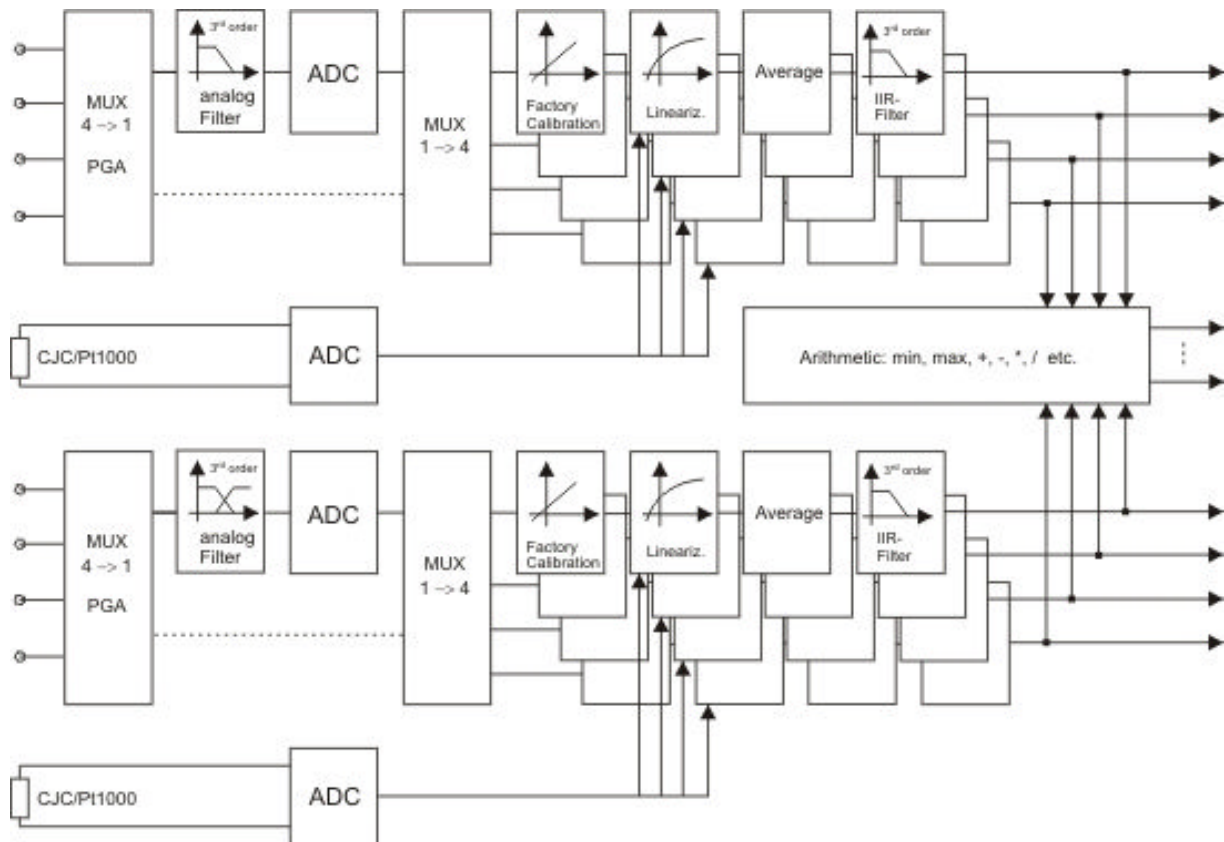




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Block Diagram



Analog Inputs			
Number	8		
Accuracy	0.01 % typical		
	0.02 % 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 VDC, permanent up to 250 VDC



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Measurement Thermocouple	Type	whole range incl. cold junction compens.
	Type B	better than $\pm 2.5^{\circ}\text{C}$ ¹⁾
	Type E, J, K, L, T, U	better than $\pm 0.5^{\circ}\text{C}$ ¹⁾
	Type N	better than $\pm 1^{\circ}\text{C}$ ¹⁾
	Type R, S	better than $\pm 1.5^{\circ}\text{C}$ ¹⁾
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	
Dimension		
Front plate (W x H)	(30 x 128) mm	
Depth	118 mm	

¹⁾ 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 January 2011. Specification subject to change without notice
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