



Q Series - Q.raxx A104 Multi Channel Plug-in Module for Thermocouples and Voltages

Gantner
instruments



The Q.raxx product is based on the standardised 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 optimised 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:

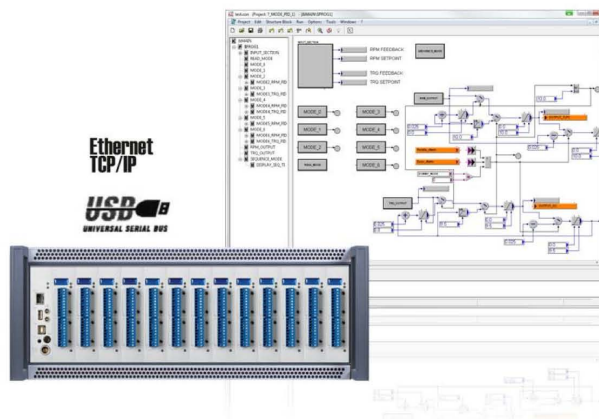
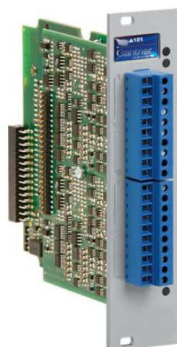
Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for all kind of test applications.

Most important features of the system:

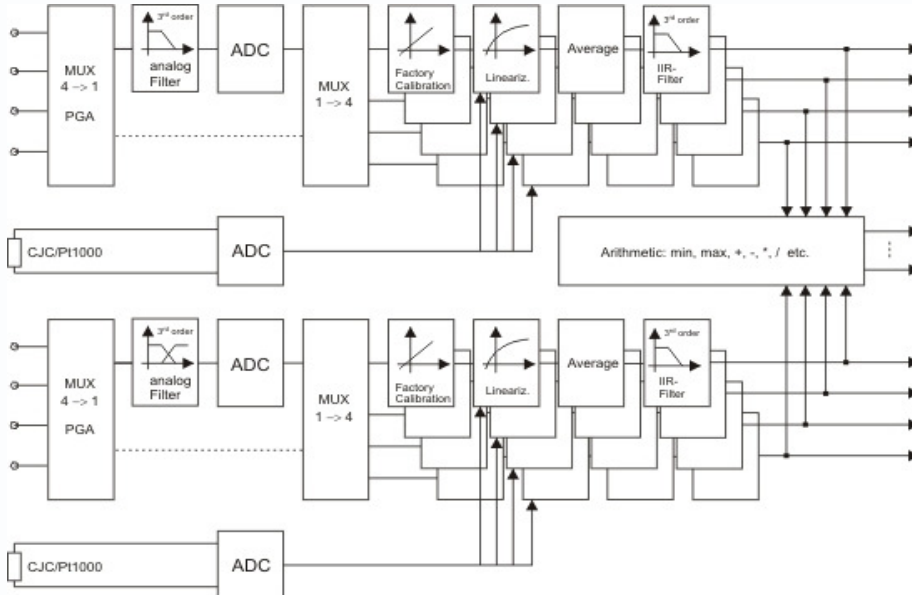
- **High density and flexibility**
Up to 16 modules in one system in any constellation, flexible plug selection
- **Test Controller inclusive**
Ethernet TCP/IP for configuration and data transfer, 16 MByte data memory, expandable by USB device, logging features, PAC functionality, IRIG synchronization
- **Robust and reliable**
Stable and compact aluminum housing, easy to carry electromagnetic compatibility according EN 61000-04 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 linearisation**
optimized positioning of the interpolation points within the selected range, type B, E, J, K, L N, R, S, T, U
- **High accuracy digitalisation**
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**
channel to channel to power supply and to interface, V_{iso} 500 VDC



Block Diagram



Specifications

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 VDC permanent, channel to channel		
	500 VDC channel to channel to power supply to interface ³		
Measurement Voltage	Range	max. Deviation	Resolution
	±80 V	±10 mV	320 μV
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		>120 dB at 1 Hz
	Measurement Thermocouple	Type whole	range incl. cold junction compens.
Type B		better than ±2.5°C *)	
Type E, J, K, L, T, U		better than ±0.5°C *)	
Type N		better than ±1°C *)	
Type R, S		better than ±1.5°C *)	
Long term drift	<0.05°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		

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

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 3rd order per channel (-3 dB at 20 Hz)
Digital filter	variable digital low pass filter 1st 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

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

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