



Q.raxx A106

Universal Measurement Plug-in Module for Bridges



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:

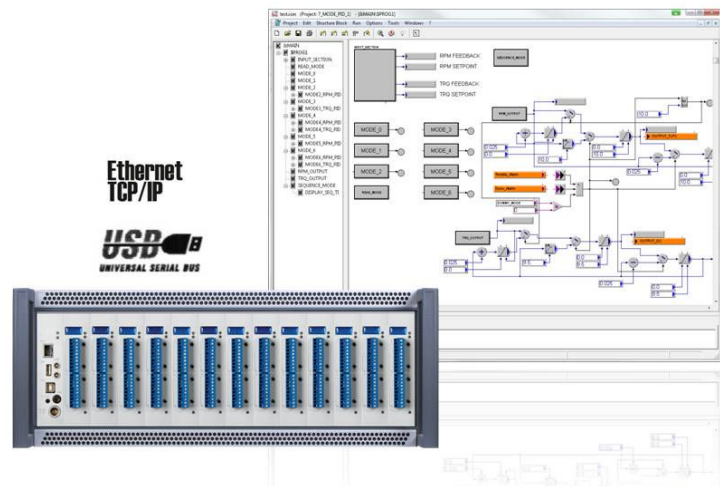
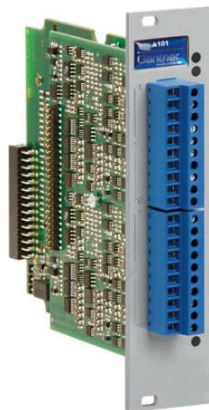
Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for all kind of test applications.

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 A106:

- **2 analog input channels**
strain gauge and inductive bridges (full, half, quarter), LVDT, RVDT
- **DC and carrier frequency principle selectable**
bridge excitation: DC or CF 600 Hz or CF 4800 Hz; 2.5 V or 5 V
- **2 analog outputs**
voltage ± 10 V, 10 kHz
- **Fast high accuracy digitalization**
24 bit ADC, 10 kHz sample rate per channel
- **4 digital I/Os**
input: state, tare, memory reset, alarm, threshold,
output: state alarm, thresh hold
- **Signal conditioning**
virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **Galvanic isolation**
channel to channel to power supply and interface, V_{iso} 500 VDC

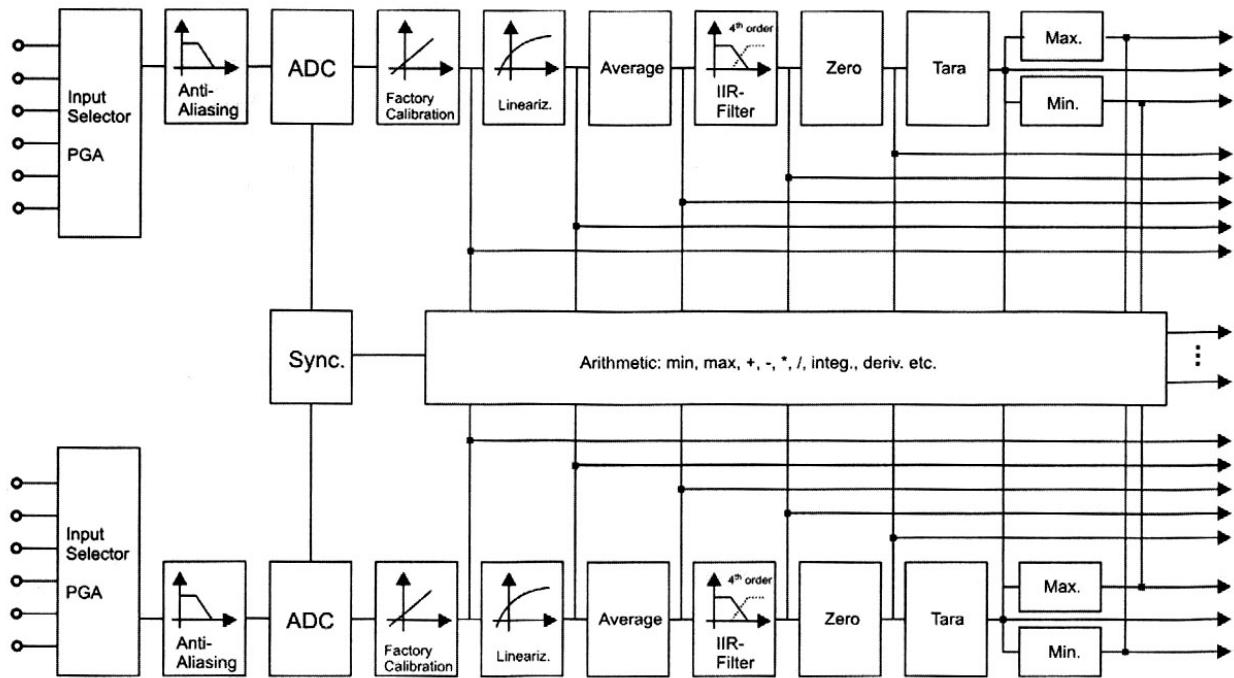




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Block Diagram



Analog Inputs			
Number	2		
Accuracy	0.05 % typical		
	0.1 % in controlled environment ¹		
	0.5 % in industrial area ²		
Repeatability	0.003 % typical (within 24 h)		
Input resistance	>10 MΩ		
Isolation voltage	500 VDC channel to channel to power supply to interface ³		
	DC Mode	600 Hz Carrier Mode (AC)	4.8 kHz Carrier Mode (AC)
Sensor type	resistive full and half bridge (5/6 wire), quarter bridge with completion terminal (3 wire)	resistive full and half bridge (5/6 wire), quarter bridge with completion terminal (3 wire)	resistive full and half bridge (5/6 wire), quarter bridge with completion terminal (3 wire) inductive full and half bridges, LVDT and RVDT sensors
Permitted sensor cable length	<300 m	<300 m	<100 m
Sensor connection	with or without sense leads for compensation of cable influences full bridge 4 or 6 wire half bridge 3 or 5 wire quarter bridge 3 wire in combination with completion terminal 120 Ω or 350 Ω		

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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Sensor excitation (selectable)	DC: 5 VDC	CF: 5 Veff	DC: 2.5 VDC	CF: 2.5 Veff
Permitted sensor resistance	>300 Ω	>300 Ω	>100 Ω	>100 Ω
Measuring range	±1.25 mV/V	±1.25 mV/V	±2.5 mV/V	±2.5 mV/V
	±2.5 mV/V	±2.5 mV/V	±5 mV/V	±5 mV/V
	±25 mV/V	±25 mV/V	±50 mV/V	±50 mV/V
	±50 mV/V	±50 mV/V	±100 mV/V	±100 mV/V
	±100 mV/V	±100 mV/V	±250 mV/V	±250 mV/V
	±250 mV/V	±250 mV/V	±500 mV/V	±500 mV/V
	±500 mV/V	±500 mV/V	±1000 mV/V	±1000 mV/V
	Temperature influence on zero (range 2.5 mV/V)	<1 μV / 10 K	<1 μV / 10 K	<1 μV / 10 K
Temperature influence on sensitivity (measuring value)	<0.05 % / 10 K	<0.05 % / 10 K	<0.05 % / 10 K	<0.05 % / 10 K
Long term drift	<1 μV/V / 24 h	<0.5 μV/V / 24 h	<1 μV/V / 24 h	<0.5 μV/V / 24 h
	<2.5 μV / V/8000h	<1.25 μV/V / 8000 h	<2.5 μV / V/8000h	<1.25 μV/V / 8000 h
Linearity Error	<0.02 % f.s.			
Noise voltage at 10 Hz	<0.3 μV/V			
Noise voltage at 100 Hz	<1 μV/V			
Analog Digital Conversion				
Resolution	24 bit			
Sample rate	10 kHz			
Conversion method	Sigma-Delta (group delay time 600 μs)			
Anti-aliasing filter	DC: 1 kHz 5 th order	4.8 kHz CF: 1 kHz 5 th order	600 Hz CF: 100 Hz, 5 th 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			
Analog Outputs				
Number	2 voltage outputs			
Accuracy	0.02 %			
DAU resolution	16 bit			
Sample rate	10 kHz			
Output voltage	±10 VDC			
Perm. load resistance	>2 kΩ			
Temperature influence	on zero		on sensitivity	
	<1 mV / 10 K		<0.05 % / 10 K	
Noise voltage in the range of	<10 mV at 1 kHz		<2 mV at 10 Hz	
Long term drift	<1 mV / 24h			



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Digital In/Outputs	
Number	4 configurable I/Os
Input	state, tare, reset
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)
Output	state, alarm, limit switch
Contact	open drain p-channel MOSFET
Load	30 VDC/100 mA (ohmic load)
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
Dimension	
Front plate (W x H)	(30 x 128) mm
Depth	118 mm

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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