



Q Series - Q.raxx A109 Analog Output Plug-in Module with Digital I/Os

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:

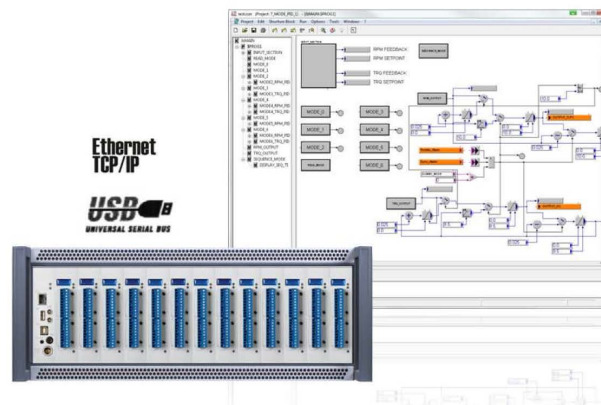
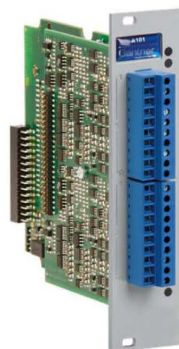
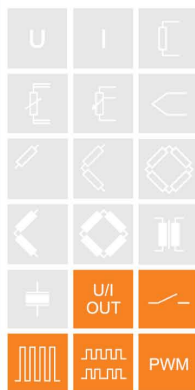
Dynamic signal acquisition up to 100 kHz, inputs and outputs for all types of signals, galvanic isolation of inputs and outputs, multi-channel solutions, high density packaging and intelligent signal conditioning for all kind of test applications.

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 A109:

- **4 galvanic isolated analog output channels**
voltage ± 10 V, current 0...20 mA selectable, isolation voltage 500 VDC
- **DAC-resolution 16 bit**
100 kHz with 1 channel, 10 kHz with 4 channels
- **4 digital inputs and 4 digital outputs**
configurable as 2 counter, 2 frequency, or 2 PWM inputs, 2 frequency or PWM output, state in or output
- **Frequency in and outputs**
frequency measurement up to 1 MHz (Chronos),
frequency output up to 1 kHz
- **Counter**
For/backward counter, quadrature counter with reference zero recognition (reset/enable), up to 1 MHz
- **PWM in and output**
measurement of duty cycle and frequency



Specifications

Analog Inputs		
Number	4	
Accuracy	0.02 %	
Output type	configurable voltage or current output	
Output voltage	±10 VDC	
Perm. load resistance	>2 kΩ	
Temperature influence	on zero	on sensitivity
	<2 mV / 10 K	<0.05 % / 10 K
Noise voltage	<10 mV at 1000 Hz	<2 mV at 10 Hz
Long term drift	<1 mV / 24 h; <2,5 mV / 8000 h	
Output current	0...20 mA	
Permitted burden	<400 Ω	
Burden influence	accuracy at 100 Ω	on sensitivity
	±4 μA	<0.1 μA / Ω
Temperature influence	on zero	on sensitivity
	<4 ΩA / 10 K	<0.05% / 10 K
Noise current	<20 ΩA at 1000 Hz	<4 ΩA at 10 Hz
Long term drift	<2 ΩA / 24 h; <5 μA / 8000 h	
Digital/Analog-Conversion		
Resolution	16 bit	
Sample rate	100 kHz per channel	
Settling time	3 μs	
Digital Inputs		
Number	4	
Input voltage	max. 30 VDC	
Input current	max. 2 mA	
Threshold TTL or		
Signal voltage „0“	-3...5 VDC (EN61131-2, Type1)	
Signal voltage „1“	11...30 VDC (EN61131-2, Type1)	
Isolation voltage	500 VDC group/group and against power supply and interface ¹	
Function Digital Inputs		
State		
Reaction time	10 μs	
Frequency measurement		
Method	Chronos	
	Optimized by combination of time measurement and pulse counting	
	Recognition of the direction of rotation (0°, 90°)	
Frequency range	0.1 Hz up to 1 MHz	
Time base	0.001 up to 1 s	
Counter frequency (reference)	48 MHz	
Resolution	0.002%	
Frequency measurement with recognition of the direction of rotation	specification like frequency measurement. For the recognition of the direction of rotation the phasing of both inputs is being used.	
PWM measurement		
Input frequency	0.1 Hz up to 1 MHz	
Resolution	21 ns	
Configuration of the measurement type	Counter for duty cycle, frequency	

¹ noise pulses up to 1000 VDC, permanent up to 250 VDC

Counter			
Counter	32 bit (± 31 bit)		
Counter frequency	1 MHz		
For/backward counter	specification like counter but with an additional input for the direction of counting		
Quadrature counter	specification like counter. For the recognition of the direction the phasing of both inputs is being used.		
Quadrature counter with zero reference and reset/enable	specification like quadrature counter but with an additional input for the „0“ reference recognition and an additional input to activate the counter functionality individually		
Digital Outputs			
Number	4		
Contact	open drain p-channel MOSFET (short circuit proof)		
Load	30 VDC/500 mA (ohmic Load)		
Function Digital Outputs			
State			
Reaction time (depending on load)	>0.5 A	>0.1 A	<0.1 A
	10 μ s	100 μ s	1000 μ s
Frequency output			
Frequency range	0.1 Hz up to 1 kHz / 10 kHz depending on load		
Accuracy	0.1%		
Resolution	1 μ s		
PWM output			
Frequency range	0.1 Hz up to 1 kHz / 10 kHz depending on load		
Accuracy	0.1%		
Resolution	1 μ s		
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		

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