Q.raxx XL A141

## Charge Amplifier Module for Piezoelectrical Sensors

Q.raxx XL is a new addition to the Q.series product family - the ideal 19" rackmount DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx XL DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx XL systems can be synchronized to each other allowing for efficient DAQ distribution with low jitter and gradual expansion up to thousands of channels.

- **High Density**
  up to 13 I/O modules per Q.raxx 3U chassis with up to 16 channels per I/O module

- **User Friendly**
  front panel indicators for module status, power, and input range error

- **Fully Customizable**
  multiple front panel termination options available

- **Maximum Flexibility**
  parallel communication available in TCP/IP, CAN, PROFIBUS, Modbus, and EtherCAT

- **Gantner's Quality Standard**
 integrated filtering, galvanic isolation & signal/sensor conditioning per channel

Key Features

- **Engineered with Kistler**

- **Galvanic isolation**
  500 VDC channel to channel, channel to power supply, and channel to bus

- **4 channels charge amplifier**
  For piezoelectric sensors
  Measuring ranges: 1000...1000000 pC

- **Fast high accuracy digitalization**
  24 bit ADC 100 kHz samlpe rate per channel

- **Signal conditioning**
  linearization, digital filter, average, scaling, min/max storage, arithmetic, alarm

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Charge Amplifier Module for Piezoelectrical Sensors
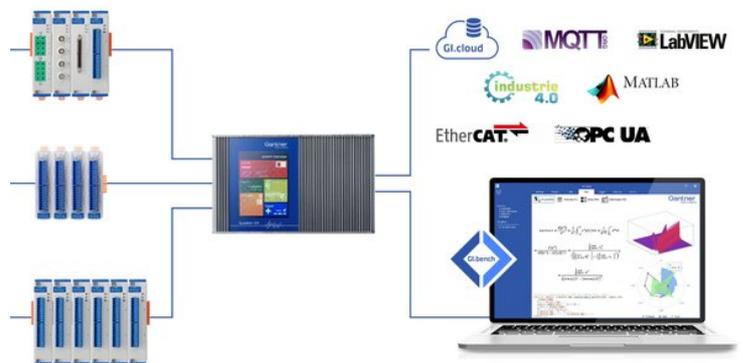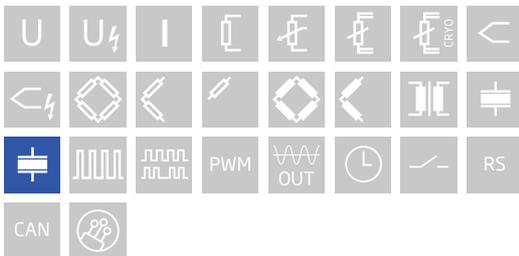
Block diagram
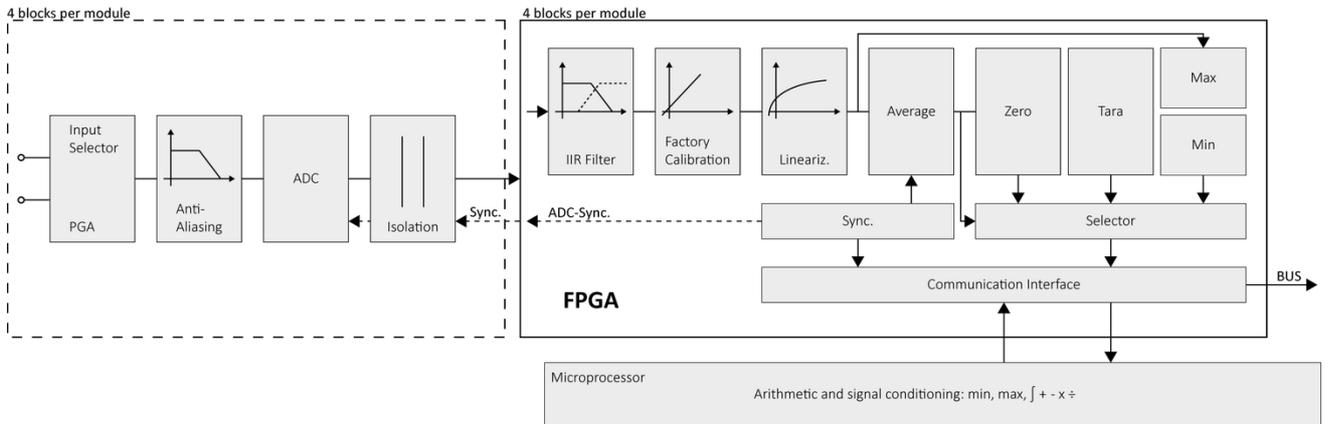
Technical Data

Analog Inputs

Channels	4
Linearity error	0.05 % FSO
Repeatability	0.003 % typical (within 24 h)
Isolation voltage	500 VDC channel to channel to power supply channel to bus

Measurement Mode Charge

Input range	1000 to 1000000 pC	
Error	< ± 1 % FSO	
Temperature coefficient	< 500 ppm / 10K	
Long-term drift	< 20 µV / 24h	< 200 µV / 8000h
Drift	< ± 0.3 pC/s	
Frequency range	0 to 20000 Hz	
Reset-Measure-jump	< ± 0.3 pC	
Min. sensor impedance	$> 10^{11}$ Ω	
Overload	≈± 105 % FS	
Crosstalk between channels	< 0.5 pC	

Time constant	Range [pC]	long [s]	short [s]
	± 1000	> 10000	≈ 1.3
	± 10000	> 100000	≈ 1.3
	± 100000	> 100000	≈ 123
	± 1000000	> 100000	≈ 123

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Analog/Digital-Conversion

Resolution	24-bit
Update rate	100 kHz
Modulation method	Sigma-Delta
Anti-aliasing filter	20 / 2 kHz, 2nd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, band-pass, band-stop, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 1 kHz in steps of 0.1 (adjustable via software)
Averaging	configurable or automatic according to the selected data rate

Environmental

Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 95 % at 50°C, non-condensing

Communication Interface Localbus

Protocols	proprietary Localbus (115200 bps to 48 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU
Data format	8E1
Electrical standard	ANSI/TIA/EIA-485-A, 2-wire

Power Supply

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	approx.. 2 W
Input voltage influence	<0.001 %/V

Remarks

Warm-up time	Validity of all listed specifications are subject to a warm-up period of at least 45 minutes
	Specifications subject to change without notice

Mechanical information

Material	Aluminum
Measurements (W x H x D)	30x 128 x 120mm
Weight	approx. 200 g

Ordering Information

Article number	532321