

Charge Amplifier Module for Piezoelectrical Sensors

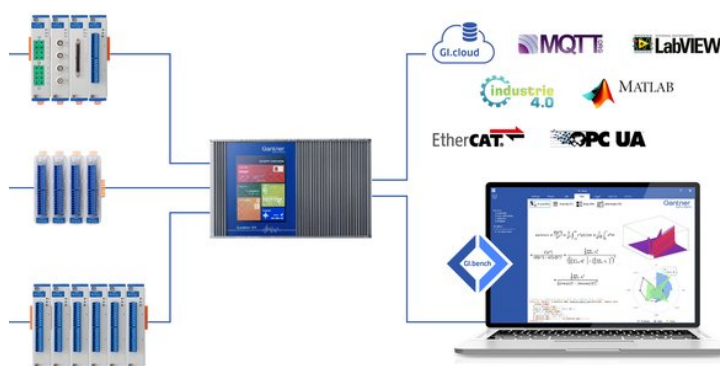
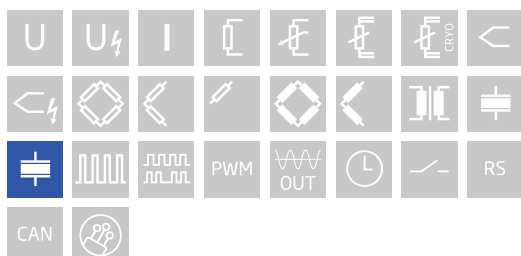
Q.bloxx XE is a new addition to the Q.series product family - the ideal EtherCAT DAQ solution for widely distributed installations that require higher performance and custom sensor terminations. Q.bloxx XE measurement modules possess integrated signal conditioning and arithmetic functions, packaged in modular, DIN Rail mountable enclosures that easily snap together for system expansion and are capable of measuring up to 100 kHz per channel with short cycle times and low jitter for accurate synchronization.

- RS-485, 2-wire, EtherCAT (LVDS)
- FoE (file access over EtherCAT, ETG.1000.5) and CoE (CAN over EtherCAT, ETG.50001.1)
- Configurable PDO mapping to optimize the data throughput
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Power supply 10 ... 30 VDC and DIN rail mounting (EN60715)

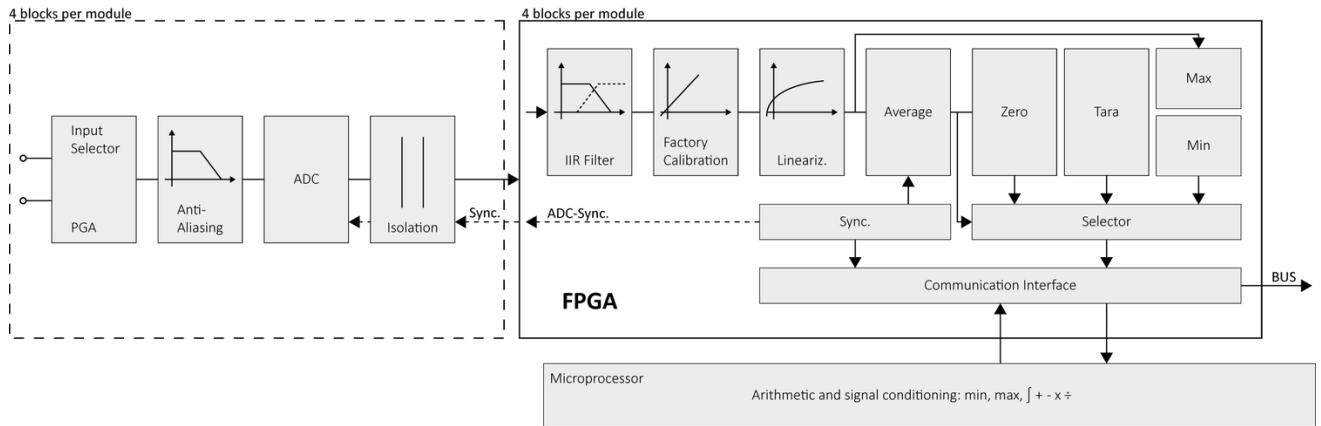


Key Features

- 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 sample rate per channel
- Signal conditioning
linearization, digital filter, average, scaling,
min/max storage, arithmetic, alarm



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

Q.bloxx XE A141

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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 EtherCAT

Electrical standard	RS-485, 2-wire
Protocols	EtherCAT (LVDS)

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 and ABS
Measurements (W x H x D)	30x 145 x 135mm
Weight	approx. 500 g

Ordering Information

Article number	519831
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