Q.bloxx XL A108 MEMS-2M3

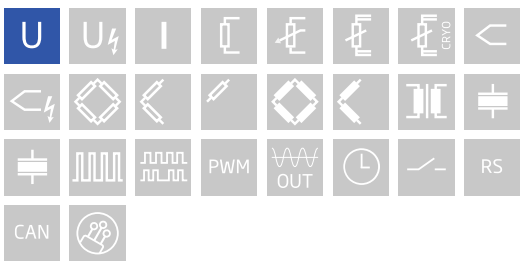
I/O module for 2 tri-axis MEMS sensors

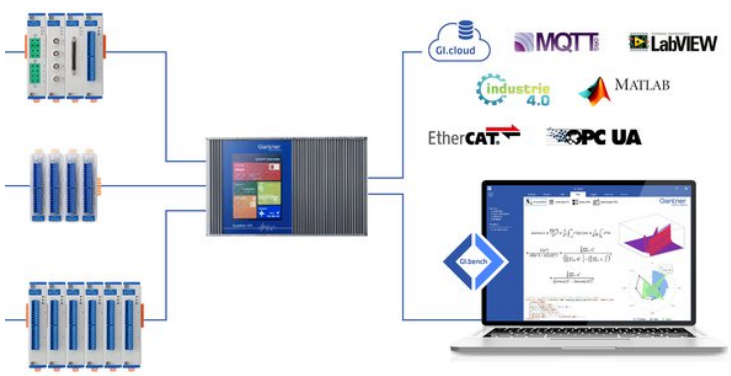
Q.bloxx XL is a new addition to the Q.series product family - the ideal DAQ solution for widely distributed installations that require higher performance and custom sensor terminations. Q.bloxx XL products are packaged in modular, DIN Rail mountable enclosures that easily snap together for system expansion. Flexibility in distribution allows for highly synchronized data that is less prone to noise due to shorter sensor cable runs to the subject.

- RS485 fieldbus interface up to 48 Mbps: LocalBus, up to 115.2 kbps: Modbus-RTU, ASCII
- Connectable to Controller Q.station X
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Power supply 10 ... 30 VDC
- DIN rail mounting (EN60715)

Key Features

- I/O module for 2 tri-axis MEMS sensors
  2 DSUB9 input sockets
  Sensor supply galvanic isolated
- 6+2 Analog input channels
  AI1,AI2,AI3 differential /single-ended switchable in groups
  AI5,AI6,AI7 differential /single-ended switchable in groups
  AI4,AI8 single-ended (e.g. for temperature input/compensation)
- High-accuracy digitization
  24-bit ADC, 20 kHz sample rate per channel
- Signal conditioning
  linearization, filtering, average, scaling, min/max, RMS, arithmetic, alarm
- 3-Way galvanic isolation
  500 VDC channel to channel, channel to power supply, and channel to bus





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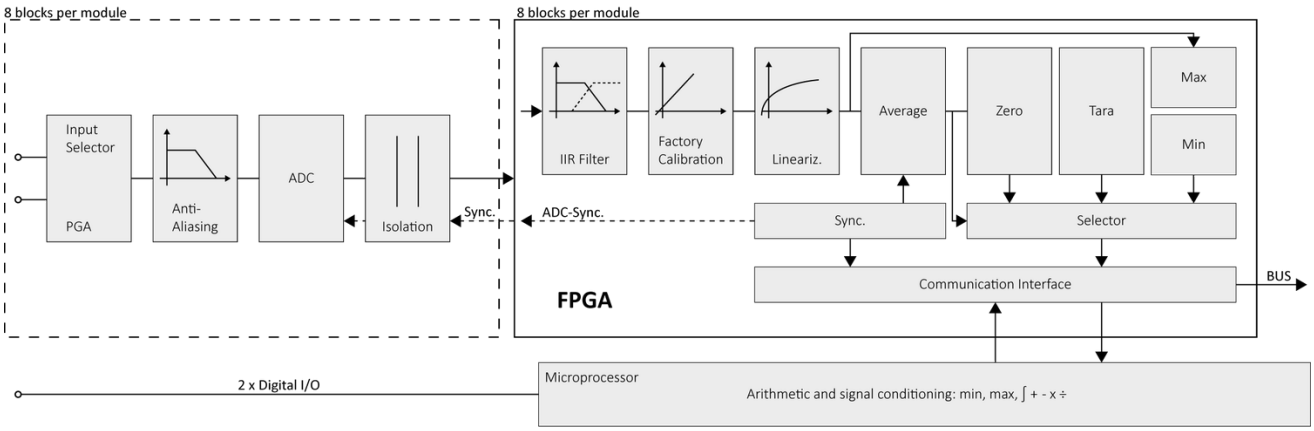
Block diagram



Technical Data

Pin assignment DSUB 9

Pin			
1		Power	Supply +15 V
2		Return	Supply GND
3		X +	X-axis +
4		Y +	Y-axis +
5		Z +	Z-axis +
6		X -	X-axis -
7		Y -	Y-axis -
8		Z -	Z-axis -
9		Temp	temperature

Analog Input

Channels	6 + 2 AI1, AI2, AI3 differential / single ended, switchable in groups AI5, AI6, AI7 differential / single ended, switchable in groups AI4, AI8 single ended (e.g. for temperature input/compensation)
Accuracy	0.01 % typical
	0.025 % in controlled environment [1]
	0.05 % in industrial area [2]
Linearity error	0.01 % typical full-scale
Repeatability	0.003 % typical (within 24 hrs)
Isolation voltage	500 VDC channel to channel, to power supply, and channel to bus [3]

[1] according to EN 61326 2006: appendix B
[2] according to EN 61326 2006: appendix A
[3] noise pulses up to 1000 VDC, continuous up to 250 VDC

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Voltage Measurement

Input range	±10 VDC	
Margin of error	±2 mV	
Resolution	1.5 µV	
Long term stability	<50 µV / 24 hrs	<200 µV / 8000 hrs
Temperature drift	<200 µV / 10 K Offset drift	<100 ppm / 10 K Gain drift
Signal-to-noise ratio	>100 dB at 100 Hz	>120 dB at 1 Hz
Input impedance	> 1 MΩ	
Overvoltage protection	± 200 V	

Analog-to-Digital Conversion

Resolution	24-bit
Sample rate	20 kHz per channel
Modulation method	sigma-delta (group delay time 600 µs)
Anti-aliasing filter	2 kHz, 3rd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, band-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 1 kHz (adjustable via software)
Averaging	configurable or automatic according to the user-defined data rate

Sensor excitation

Channels	2
Voltage	15 V
Current	max. 40 mA (short circuit proof)
Accuracy	< 3 %
Load regulation	< 0.1 %
Noise	1.2 mV (RMS)

Communication Interface

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

Input Power

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	3.5 W (approx.)
Input voltage influence	<0.001 % / V

Environmental Specifications

Electromagnetic compatibility (EMC)	according to IEC 61000-4 and EN 55011
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 - 95 % at 50°C (non-condensing)

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Remarks

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	586431

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