Q.brixx XL A108 MEMS-4M1

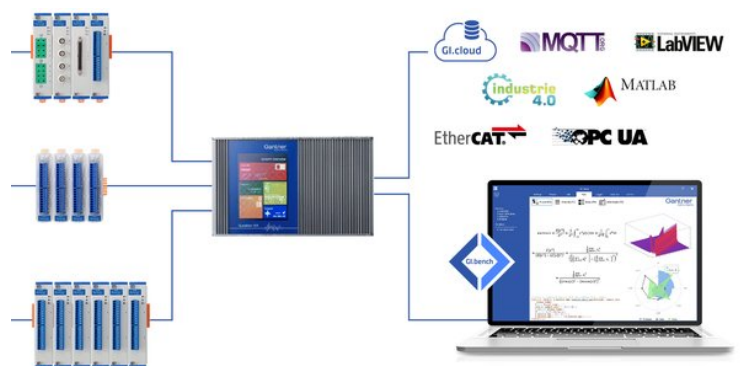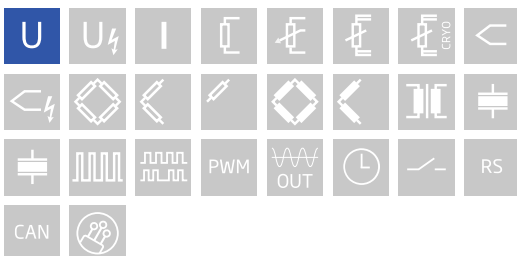## I/O Module for 4 single-axis MEMS sensors

Q.brixx XL is a new addition to the Q.series product family - the ideal DAQ solution for on-the-go applications requiring higher performance in potentially harsh environments. Q.brixx XL DAQ systems consist of up to 16 measurement modules and an integrated, high-performance controller for communication, control, and data logging purposes, all within a robust aluminum housing capable of withstanding severe shock and vibration without sacrificing performance.

- High density and flexibility with16 modules in one system in any constellation
- Connectable to Controller Q.station

- Electromagnetic Compatibility according to EN61000-4 and EN55011
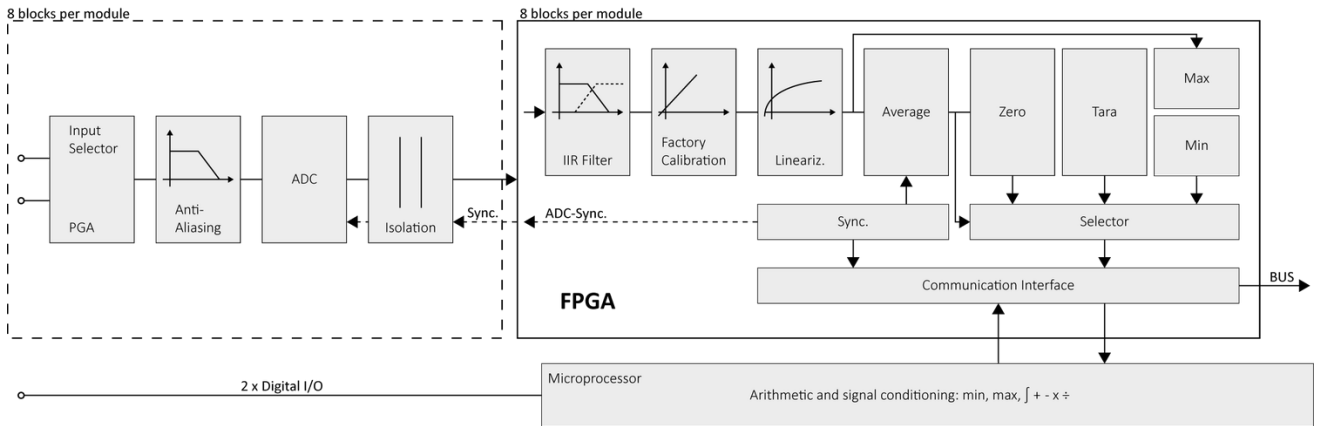- Power supply 10 ... 30 VDC

Key Features

- **I/O module for 4 single-axis MEMS sensors**
  Four 1/4-28 input sockets (4 pole) MicroCom CMR
  Sensor supply galvanic isolated

- **4+4 Analog input channels**
  AI1,AI2,AI3 AI4 differential /single-ended switchable in groups
  AI5,AI6,AI7,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

Pin			
1		Power	Supply +15 V
2		Return	Supply GND
3		AIn +	Analog IN +
4		AIn - / Temp	Analog IN - / temperature

Analog Input

Channels	4 + 4
	AI1, AI2, AI3, AI4 differential / single ended, switchable in groups
	AI5, AI6, AI7, 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
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	4
Voltage	15 V
Current	max. 20 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
Measurements (W x H x D)	30x 137 x 135mm
Weight	approx. 500 g

Ordering Information

Article number	585430

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