

Q.brixx XL A146 350

High Density Strain Gage Measurement Module

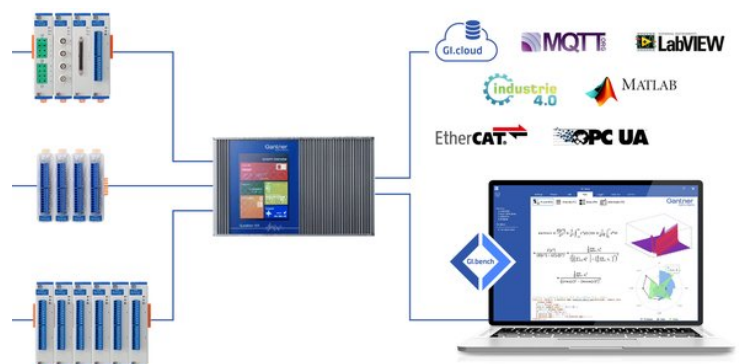
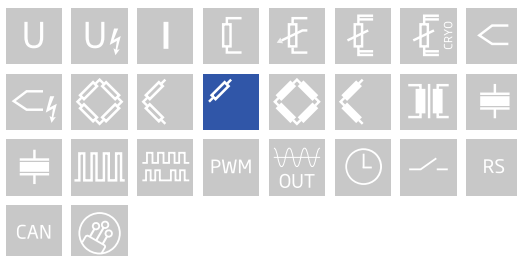
Q.brixx XL is a new addition to the Q.series product family - the ideal DAQ solution for on-the-go applications requiring higher performance in potentially harsh environments. Q.brixx XL DAQ systems consist of up to 16 measurement modules and an integrated, high-performance controller for communication, 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 with 16 modules in one system in any constellation
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Connectable to Controller Q.station
- Power supply 10 ... 30 VDC



Key Features

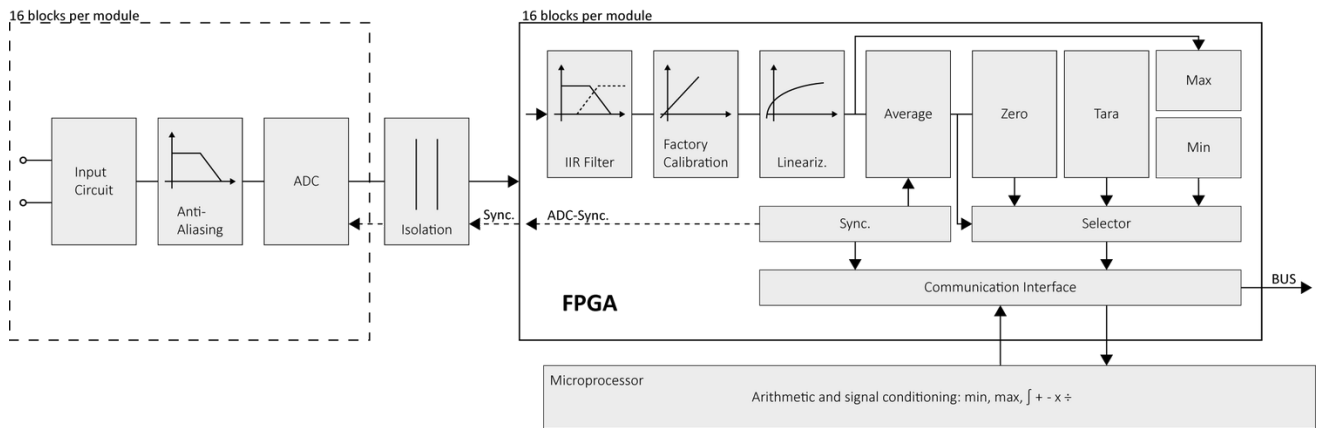
- 16 analog input channels for strain gages quarter-bridge configuration
- High-accuracy digitization
24-bit ADC, 10 kHz sample rate per channel
- Selectable input ranges for optimal signal-to-noise ratio
2 or 20 mV/V ($\pm 4000 \mu\text{m/m}$ or $\pm 40000 \mu\text{m/m}$ with $k=2$)
- Active lead wire resistance compensation
online compensation signal (OCS) for continuous compensation of lead wire resistance changes
- Build-in shunt resistor
Shunt verification of the complete measurement chain.
- Galvanic isolation
channel to supply to interface
- Electromagnetic compatibility (EMC)
according to IEC 61000-4 and EN 55011



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Block diagram



Technical Data

Analog Input

Channels	16
Accuracy	0.02 % typical 0.05 % in controlled environment ¹ 0.1 % in industrial area ²
Linearity error	0.01 % typical full-scale
Input impedance	<10 MΩ
Isolation voltage	500 VDC channel to input voltage to interface 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

Analog-to-Digital Conversion

Resolution	24-bit
Sample rate	10 kHz per channel
Modulation method	sigma-delta
Anti-aliasing filter	1 kHz, 3rd 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 2 kHz
Averaging	configurable or automatic according to the user-defined data rate

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Strain Gage Measurement

Bridge configuration(s)	resistance quarter-bridge (3-wire, with lead wire resistance compensation)	
Accuracy class	0.05	
Bridge completion resistor	350 Ω (others upon request)	
Temp. Coefficient of Resistance (TCR)	0.05 ppm/K	
Input range	selectable ± 2 mV/V or ± 20 mV/V per channel (± 4000 $\mu\text{m/m}$ or ± 40000 $\mu\text{m/m}$ with $k=2$)	
Shunt resistor	100 k Ω internal resistor	
Bridge excitation	2 VDC per channel	
Maximum sensor cable length	150 m	
Long-term stability	< 0.2 $\mu\text{V/V}$ / 24 hrs	< 2 $\mu\text{V/V}$ / 8000 hrs
Temperature drift	< 0.5 $\mu\text{V/V}$ / 10 K Offset drift	0.05 % / 10 K Gain drift
Noise	< 0.3 $\mu\text{V/V}$ (at 10 Hz)	

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	

Input Power

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	2 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)

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

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Ordering Information

Article number	541826
Accessories	Connection Terminal A146, article number 536224

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