

# Q.bloxx XE A146 120

## High Density Strain Gage Measurement Module

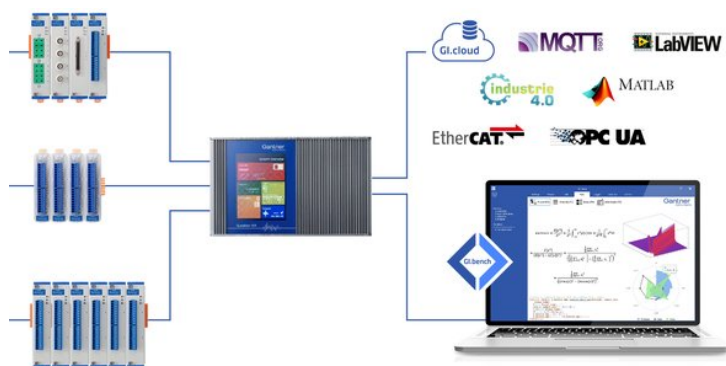
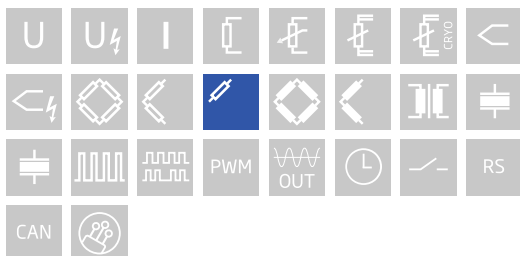
Q.bloxx XE is a new addition to the Q.series product family - the ideal EtherCAT DAQ solution for widely distributed installations that require higher performance and custom sensor terminations. Q.bloxx XE measurement modules possess integrated signal conditioning and arithmetic functions, packaged in 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)

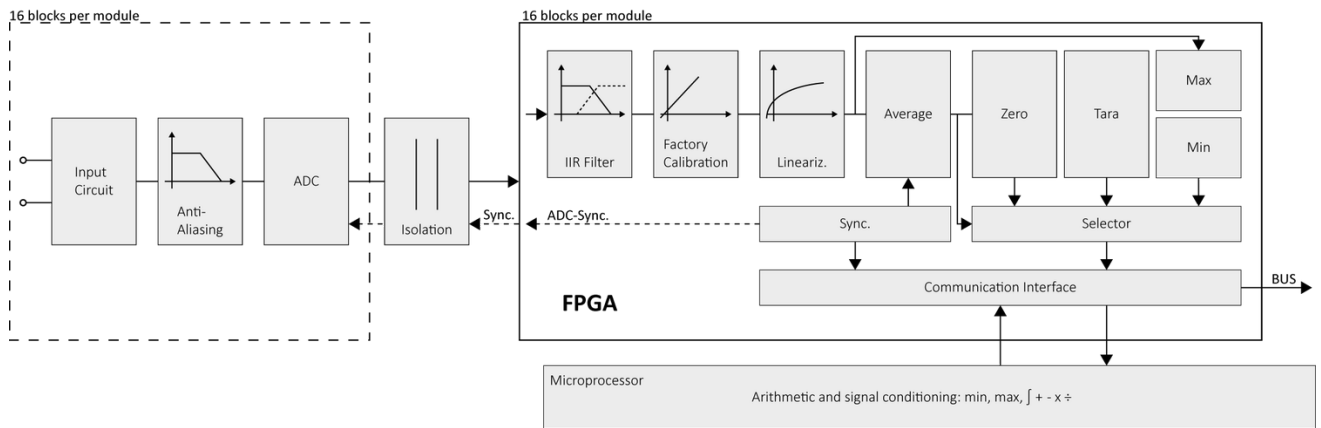


### Key Features

- High-accuracy digitization  
24-bit ADC, 10 kHz sample rate per channel
- Build-in shunt resistor  
Shunt verification of the complete measurement chain.
- 16 analog input channels for strain gages  
quarter-bridge configuration
- Electromagnetic compatibility (EMC)  
according to IEC 61000-4 and EN 55011
- Galvanic isolation  
channel to supply to interface
- Active lead wire resistance compensation  
online compensation signal (OCS) for continuous compensation of lead wire resistance changes
- 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  $k=2$ )



### Block diagram



### Technical Data

#### Analog Input

Channels	16
Accuracy	0.02 % typical
	0.05 % in controlled environment <sup>1</sup>
	0.1 % in industrial area <sup>2</sup>
Linearity error	0.01 % typical full-scale
Input impedance	<10 MΩ
Isolation voltage	500 VDC channel to input voltage to interface <sup>3</sup>

<sup>1</sup> according to EN 61326 2006: appendix B

<sup>2</sup> according to EN 61326 2006: appendix A

<sup>3</sup> 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	120 $\Omega$ (others upon request)	
Temp. Coefficient of Resistance (TCR)	0.05 ppm/K	
Input range	selectable $\pm 2$ mV/V or $\pm 20$ mV/V per channel ( $\pm 4000$ $\mu\text{m/m}$ or $\pm 40000$ $\mu\text{m/m}$ with $k=2$ )	
Shunt resistor	100 k $\Omega$ 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 EtherCAT

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

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

### Ordering Information

Article number	624222
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