

Q.brixx XE A111 BNC

Measurement Module for Voltages and IEPE Sensors

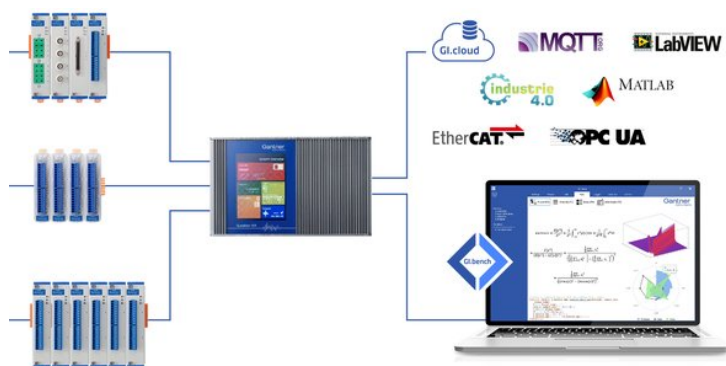
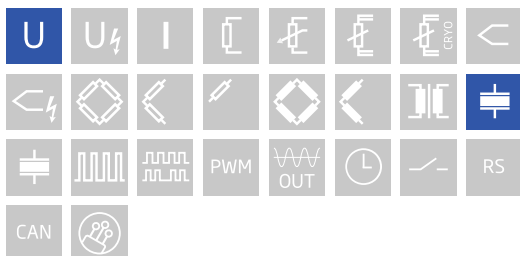
Q.brixx XE is a new addition to the Q.series product family - the ideal EtherCAT DAQ solution for on-the-go applications in potentially harsh environments. Q.brixx XE DAQ systems consist of up to 10 measurement modules capable of up to 100 kHz sampling per channel and an integrated EtherCAT bus coupler providing short cycle times and low jitter for accurate synchronization, all within a robust aluminum housing capable of withstanding severe shock and vibration without sacrificing performance.

- DC (distributed clock) for data synchronization
- 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



Key Features

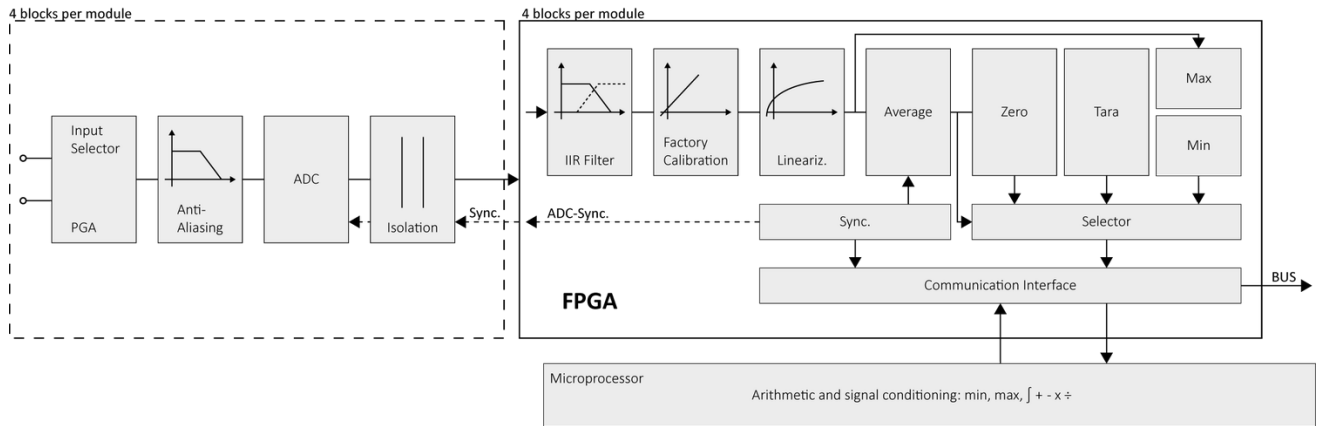
- 4 galvanic isolated analog input channels
IEPE sensors, voltage
- High-accuracy digitization
24-bit ADC, 100 kHz sample rate per channel
- Signal conditioning
16 virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- Configurable input ranges
 ± 100 mV, ± 1 VDC, ± 10 VDC
- Galvanic isolation
500 VDC channel to channel, channel to power supply, and bank



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Block diagram



Technical Data

Analog Input

| | |
|-------------------|--|
| Channels | 4 |
| 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) |
| Input impedance | >1 MΩ (unless otherwise stated) |
| Isolation voltage | 500 VDC channels, to power supply, 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

Voltage Measurement

| Input range | Margin of error | Resolution | Input impedance |
|----------------------------------|----------------------------|---------------------------|-----------------|
| ±100 mV | ±20 µV | 12 nV | >1 MΩ |
| ±1 V | ±200 µV | 120 nV | >1 MΩ |
| ±10 V | ±2 mV | 1.2 µV | >1 MΩ |
| Long-term stability (range ±1 V) | <20 µV / 24 hrs | <200 µV / 8000 hrs | |
| Temperature drift (range ±1 V) | <50 µV / 10 K Offset drift | <0.01 % / 10 K Gain drift | |
| Signal-to-noise ratio | >90 dB at 1 kHz | >120 dB at 1 Hz | |

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IEPE Measurement

| Input range | Margin of error | Resolution | Input impedance |
|--------------------------------|----------------------------|----------------------------|-----------------|
| ±1 V | ±1 mV | 120 nV | >1 MΩ |
| ±10 V | ±10 mV | 1.2 μV | >1 MΩ |
| Sensor excitation | 4 mA ±10% constant current | | |
| Compliance voltage | 22 VDC ±10% | | |
| Input frequency range | 0.5 Hz to 20 kHz | | |
| Temperature drift (range ±1 V) | <50 μV / 10 K Offset drift | <0.025 % / 10 K Gain drift | |

Analog to Digital Conversion

| | |
|----------------------|--|
| Resolution | 24-bit |
| Sample rate | 100 kHz per channel |
| Modulation method | sigma-delta |
| Anti-aliasing filter | 20 kHz, 3rd order |
| Digital filters | Infinite impulse response (IIR), low-pass, high-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 20 kHz (adjustable via software) |
| Averaging | configurable or automatic according to the selected data rate |

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 | 2.5 W (approx.) |
| Input voltage influence | <0.001 % / V |

Environmental Specifications

| | |
|-----------------------|-------------------------------------|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -40°C to +85°C |
| Relative humidity | 5 % to 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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Measurement Module for Voltages and IEPE Sensors

Ordering Information

| | |
|----------------|--------|
| Article number | 524019 |
|----------------|--------|

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