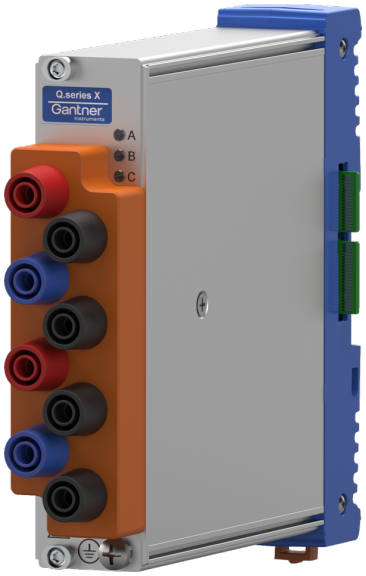
# Q.bloxx XL A127 SEB

## Module for Measuring Electrical Power

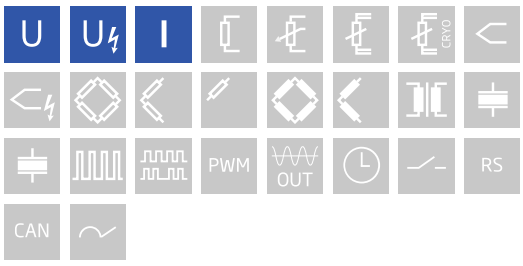
Q.bloxx XL is a new addition to the Q.series product family - the ideal DAQ solution for widely distributed installations that require higher performance and custom sensor terminations. Q.bloxx XL products are packaged in modular, DIN Rail mountable enclosures that easily snap together for system expansion. 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

- **4 voltage input channels**
  2 inputs for voltage measurement
  measuring ranges ±40 V, ±120 V, ±400 V, ±1200 V
  2 inputs for current measurement via shunt resistors measuring ranges ±80 mV, ±240 mV, ±800 mV, ±2400 mV
- **Signal conditioning**
  linearization, digital filter, average, scaling, min/max storage, RMS, alarm
- **Fast high accuracy digitalization**
  24 bit ADC, 100 kHz sample rate per channel
- **Galvanic isolation**
  channel to channel to power supply and to interface
- **Categories**
  1000 V CAT II and 600 V CAT III

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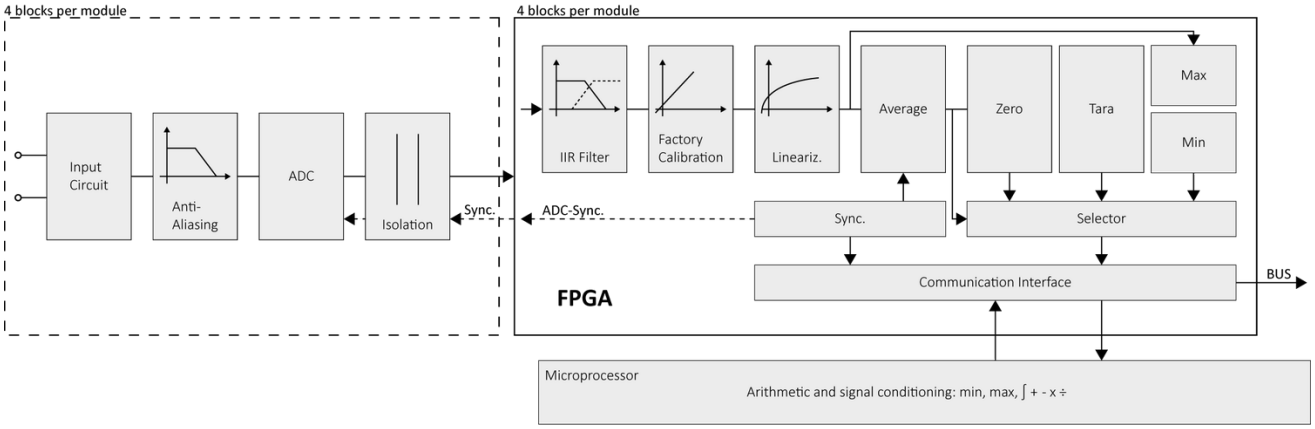
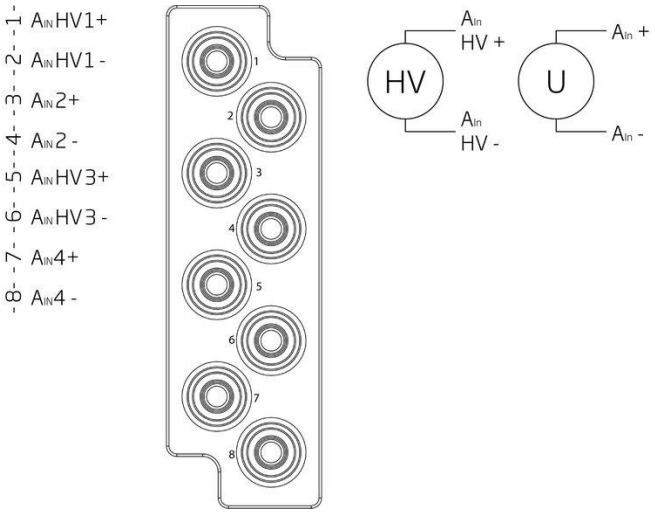
## Block diagram




## Technical Data

### Terminal assignment High Voltage Banana




### Analog Inputs

| | |
|---|---|
| Channels | 4 |
| Isolation voltage | 1200 VDC continuous, channel to channel to power supply channel to bus [1] |

1 High voltage lifetime (TDDB E Model). Time to fail approx.. 4 years at 1200 VDC and 60 °C continuous

### Measurement Mode Voltage AI1 + AI3

| | | | | |
|---|---|---|---|---|
| Range | ± 1200 V | ± 400 V | ± 120 V | ± 40 V |
| Accuracy | ± 300 mV | ± 100 mV | ± 30 mV | ± 10 mV |
| Resolution | 300 µV | 100 µV | 30 µV | 10 µV |
| Long-term offset stability | 30 mV / 24 h | 10 mV / 24 h | 3 mV / 24 h | 1 mV / 24 h |
| | 100 mV / 8000 h | 30 mV / 8000 h | 10 mV / 8000 h | 3 mV / 8000 h |
| Offset temperature influence | 100 mV / 10k | 30 mV / 10 k | 10 mV / 10 k | 3 mV / 10 |
| temperature influence | 0.025 % / 10K | | | |
| Input impedance | > 10 MΩ | | | |

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### Measurement Mode Voltage AI2 + AI4

| | | | | |
|---|---|---|---|---|
| Range | ± 2.4 V | ± 800 mV | ± 240 mV | ± 80 mV |
| Accuracy | ± 600 µV | ± 200 µV | ± 60 µV | ± 20 µV |
| Resolution | 600 nV | 200 nV | 60 nV | 20 nV |
| Long-term offset stability | 60 µV / 24 h | 20 µV / 24 h | 6 µV / 24 h | 2 µV / 24 h |
| | 200 µV / 8000 h | 60 µV / 8000 h | 20 µV / 8000 h | 10 µV / 8000 h |
| Offset temperature influence | 200 µV / 10k | 60 µV / 10 k | 20 µV / 10 k | 10 µV / 10 k |
| temperature influence | 0.025 % / 10K | | | |
| Input impedance | > 100 MΩ | | | |

### Measurement Mode Current

| | | | |
|---|---|---|---|
| Via Shunt Channel 2 and 4 | range | max. error | resolution |
| | ±2400 mV | ±600 µV | 600 nV |
| | ±800 mV | ±200 µV | 200 nV |
| | ±240 mV | ±60 µV | 60 nV |
| | ±80 mV | ±20 µV | 20 nV |
| Long-term drift | <20 µV / 24 h | <200 µV / 8000 h | |
| Temperature influence | Offset drift | Gain drift | |
| | <50 µV / 10 K | <0.02 % / 10 K | |

### Analog/Digital-Conversion

| | |
|---|---|
| Resolution | 24-bit |
| Update rate | 100 kHz |
| Modulation method | Sigma-Delta |
| Anti-aliasing filter | 20 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 10 kHz (adjustable via software) |
| Averaging | configurable or automatic according to the selected data rate |

### Communication Interface Localbus

| | |
|---|---|
| Protocols | proprietary Localbus (115200 bps to 48 Mbps, latency <100 ns)<br>ASCII (19200 bps to 115200 bps)<br>Modbus RTU |
| Data format | 8E1 |
| Electrical standard | ANSI/TIA/EIA-485-A, 2-wire |

### Power Supply

| | |
|---|---|
| Input voltage | 10 to 30 VDC, overvoltage and overcurrent protection |
| Power consumption | approx.. 2 W |
| Input voltage influence | <0.001 %/V |

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## Module for Measuring Electrical Power

### Environmental

| | |
|---|---|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -40°C to +85°C |
| Relative humidity | 5 % to 95 % at 50°C, non-condensing |
| Pollution degree | 1 |

### Remarks

| |
|---|
| Are subject to a warm-up period of at least 45 minutes |
| in a controlled electromagnetic environment[1] |
| With configuration: Low-pass 10Hz[2] |
| Specifications subject to change without notice |

1 according to EN 61326 2006: appendix B
2 according to EN 61326 2006: appendix A

### High Voltage Warnings

- Attention! High voltage device! - Danger to life and health in case of non regular use.
- Only special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safe and permanently connected to protected earth PE.
- Only contact protection plugs and cables may be used. All parts must be approved for voltages up to 1200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations must be considered.
- Do not operate with damaged casing.

Base is the european standard EN61010-1

### Mechanical Information

| | |
|---|---|
| Material | Aluminum and ABS |
| Measurements (W x H x D) | 30x 145 x 160mm |
| Weight | approx. 500 g |
| Protection class | IP20 |

### Ordering Information

| | |
|---|---|
| Article number | 518931 |

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