Q.bloxx XL A127

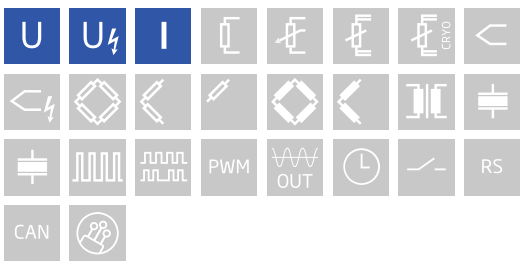
Module for Measuring Electrical Power

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 isolation voltage
  1200 VDC / 848 VACrms test voltage 5 kVDC over 1 minute
- **Categories**
  1000 V CAT II and 600 V CAT III



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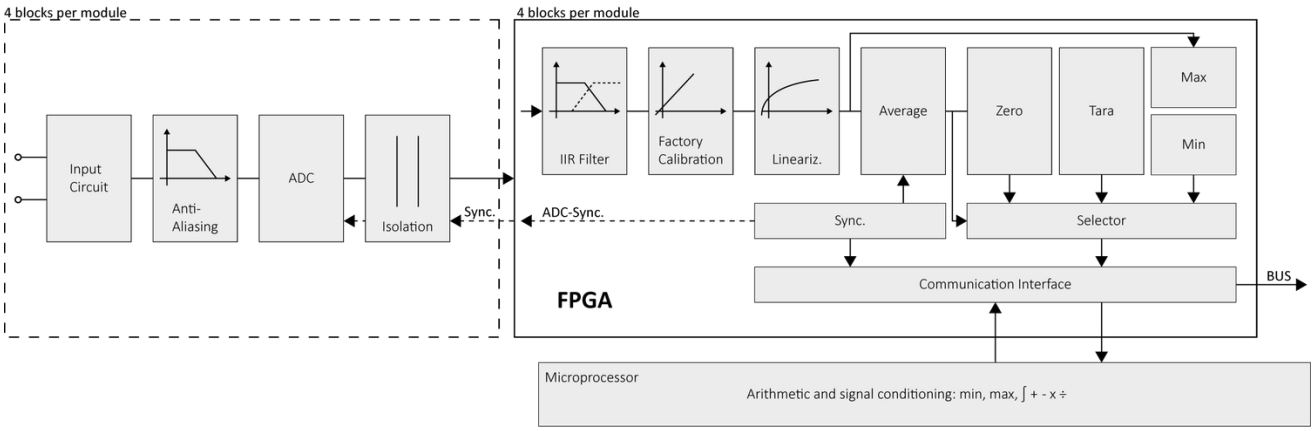
Block diagram



Technical Data

Analog Inputs

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 h)
Isolation voltage	1200 VDC continuous, channel to channel to power supply channel to bus[3]

1 according to EN 61326 2006: appendix B
2 according to EN 61326 2006: appendix A
3 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	6 mV	2 mV	600 µV	200 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			

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	12 µV	4 µV	1.2 µV	0.4 µV
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
temperature influence	0.025 % / 10K			

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Measurement Mode Current

Via Shunt Channel 2 and 4	range	max. error	resolution
	±2400 mV	±600 µV	12 µV
	±800 mV	±200 µV	4 µV
	±240 mV	±60 µV	1,2 µV
	±80 mV	±20 µV	0,4 µV
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 (group delay time 380 µs)
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) ASCII (19200 bps to 115200 bps) 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

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

Remarks

Warm-up time	Validity of all listed specifications are subject to a warm-up period of at least 45 minutes
	Specifications subject to change without notice

High Voltage Warnings

- Attention High voltage device, Danger for 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 safely and continuous 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.

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

Ordering Information

Article number	518931

Gantner Instruments

Austria | Germany | France | Sweden | India | USA | China | Singapore
Montafonerstraße 4 · A-6780 Schruns · T +43 55 56 · 77 463-0

office@gantner-instruments.com
www.gantner-instruments.com